

# **Official Transcript of Proceedings**

## **NUCLEAR REGULATORY COMMISSION**

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                              Fukushima Subcommittee

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
(ACRS)  
+ + + + +  
FUKUSHIMA SUBCOMMITTEE  
+ + + + +  
FRIDAY  
NOVEMBER 21, 2014  
+ + + + +  
ROCKVILLE, MARYLAND  
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The Subcommittee met at the Nuclear  
Regulatory Commission, Two White Flint North, Room  
T2B1, 11545 Rockville Pike, at 8:30 a.m., Stephen P.  
Schultz, Chairman, presiding.

COMMITTEE MEMBERS :

STEPHEN P. SCHULTZ, Chairman

RONALD G. BALLINGER, Member

DENNIS C. BLEY, Member

CHARLES H. BROWN, JR., Member

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JOY L. REMPE, Member

PETER C. RICCARDELLA, Member

MICHAEL T. RYAN, Member

GORDON R. SKILLMAN, Member

JOHN W. STETKAR, Member

ACRS CONSULTANT:

WILLIAM J. SHACK\*

DESIGNATED FEDERAL OFFICIAL:

MICHAEL R. SNODDERLY

1 ALSO PRESENT:

2 EDWIN M. HACKETT, Executive Director

3 PHIL AMWAY, Nine Mile Point

4 STEWART BAILEY, NRR

5 VALERIE BARNES, RES\*

6 SCOTT BAUER, NEI

7 JEREMY BOWEN, NRR

8 ERIC BOWMAN, NRR

9 DAN BRUSH, Exelon

10 RANDY BUNT, Southern Nuclear

11 JACK DAVIS, NRR

12 GENE EIMAR, Palo Verde

13 KURT FLAIG, Dominion

14 BRYAN FORD, Entergy Nuclear

15 ED FULLER, RES

16 DAVID GAMBRELL, Southern Nuclear

17 JOHN GIDDENS, Southern Nuclear

18 GARY HOLAHAN, NRO

19 TOM JACKSON, Rizzo Associates\*

20 MARVIN LEWIS\*

21 DAVID LLEWELLYN, Duke Energy

22 EDWIN LYMAN, Union of Concerned Scientists

23 JOHN MCKIRGAN, NRO

24 JEFFERY MITMAN, NRR

25 ABY MOHSENI, NRR

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1	MALCOLM PATTERSON, NRO
2	MARIE POHIDA, NRO
3	MIKE POWELL, Palo Verde
4	WILLIAM RECKLEY, NRR
5	TIM REED, NRR
6	JIM RILEY, NEI
7	SUZANNE SCHROER, RES
8	KEN SEE, NRO
9	JIM SHEA, NRO
10	GEORGE TARTAL, NRO
11	BILL WEBSTER, Dominion
12	DAVID YOUNG, NEI

13

14 \*Present via telephone

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

8:31 a.m.

CHAIRMAN SCHULTZ: Good morning. This meeting will now come to order following our recess. This opens the second day of the ACRS Fukushima Subcommittee meeting. I'm Steve Schultz, the chairman of the subcommittee.

Members in attendance today are Pete Riccardella, Ron Ballinger, Dick Skillman, Harold Ray, Dennis Bley, John Stetkar, Mike Ryan, Charlie Brown, Joy Rempe and Mike Corradini. Also, our consultant, former ACRS chairman, Dr. Bill Shack, is on the phone.

Today, we will build on yesterday's discussion on implementation of Order EA-12-049, an order modifying licenses with regard to requirements for mitigation strategies will be on design basis external events. We're going to first focus on the staff's preliminary proposed rule language for the mitigation of beyond design basis events rulemaking. Then we will review a staff-wide paper which has been prepared on the integration and mitigation strategies for beyond design basis external events with the reevaluation of flooding hazards and explore a number of views on this process.

Mr. Mike Snodderly continues as the

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1 designated federal official for this meeting. We've  
2 received no written comments. We have arranged for Dr.  
3 Ed Lyman of the Union of Concerned Scientists to make  
4 an oral statement this afternoon.

5 This meeting is open to the public, except  
6 that portions today may be closed to protect  
7 information that is predecisional, pursuant to 5 USC  
8 55(b)(c), paragraph 9(b). Again, it's our  
9 understanding in today's presentation material that it  
10 will not contain such information, but we will rely upon  
11 the presenters to notify us if our questions do stray  
12 into an area where predecisional information may be  
13 disclosed. Then we may decide to pursue that  
14 discussion, and we would establish a closed session  
15 within the meeting.

16 I want to remind the participants that a  
17 transcript of the meeting is being kept and will be made  
18 available, as stated in the Federal Register notice.  
19 Therefore, we'll request that participants in the  
20 meeting use microphones located throughout the meeting  
21 room when addressing the subcommittee. All  
22 participants should first identify themselves at the  
23 microphone or over the phone line and speak with  
24 sufficient clarity and volume so they may be readily  
25 heard.

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1           Also, at this point, we would request that  
2           you silent your cell phones and any other electronic  
3           device that may disrupt the meeting.

4           I understand that there are individuals on  
5           the phone bridge line today who are listening in on the  
6           proceedings.     To effectively coordinate their  
7           participation in the meeting today, we will be  
8           replacing the incoming bridge line on mute so that those  
9           individuals may listen in.   At appropriate times later  
10          in the meeting, we'll provide the opportunity for  
11          public comment both from individuals on the bridge  
12          line, as well as for members of the public in  
13          attendance.

14          Yesterday, we had a good discussion  
15          related to the mitigating strategies implementations  
16          related to the order.   Today, we're going to talk  
17          further about the next part of that process, which is  
18          the proposed rulemaking, another element of the  
19          Fukushima action items.   And what we're working to  
20          examine today, what the subcommittee is examining and  
21          what we expect the subcommittee will bring to the full  
22          committee in December is a discussion and deliberation  
23          related to, given what we talked about yesterday, what  
24          is the appropriate regulatory framework that ought to  
25          be devised in order to move forward with new ways of

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1 doing things, new operational capabilities, and new  
2 considerations as a result of the Fukushima accident  
3 and all of the lessons learned that we've established  
4 over the last few years.

5 So with that, as we open up the meeting,  
6 I would like to recognize Aby Mohseni, who is going to  
7 open the proceedings for today and introduce the  
8 speakers. Welcome, Aby.

9 MR. MOHSENI: Thank you very much, Mr.  
10 Chairman, distinguished members. Good morning. My  
11 name is Aby Mohseni, as you said, and I am the Deputy  
12 Director of the Division of Policy and Rulemaking in  
13 the Office of NRR.

14 Today, we open up the meeting with NRC  
15 staff presenting draft language on the proposed  
16 mitigation of beyond design basis events rulemaking.  
17 These notes that this activity is formally known as the  
18 consolidated rule.

19 To support this presentation, I have with  
20 me several members of NRR and a member from NRO. Tim  
21 Reed, on my left, from our staff will be leading the  
22 discussion of the proposed MBDBE rulemaking, which is  
23 a funny acronym to pronounce.

24 Supporting Tim as the lead technical  
25 expert in the mitigation strategies is Eric Bowman from

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1 the Japanese Lessons Learned Division. We have also  
2 Bill Reckley, also from the Japanese Lessons Learned  
3 Division, to support any discussion regarding feedback  
4 from NTTF-2.1, flooding reevaluated hazards and its  
5 relationship to this proposed rulemaking. And,  
6 finally, we have from NRO George Tartal to support the  
7 discussion of the proposed provisions for new reactors.

8 There are other members from the  
9 mitigation of beyond design basis events rulemaking  
10 working group in attendance, and they will support  
11 questions from the committee, as needed. The  
12 preliminary proposed rule language was made publicly  
13 available on November 13th, 2014 in preparation for  
14 this meeting. The preliminary proposed rule language  
15 shows the integration of requirements that reflect and  
16 align with industry implementation. Since the  
17 Commission has not considered the draft proposed rule  
18 language, these clearly do not constitute an official  
19 NRC position.

20 As directed by SRM-14-0046 issued July  
21 19th, 2014, this consolidated rulemaking addresses,  
22 either in requirements or through supporting  
23 implementation guidance, regulatory actions that stem  
24 from all of the recommendations in NTTF-4, 7, 8, 9.1,  
25 9.2, 9.3, with one exception: the maintenance of ERDS

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1 capability throughout the accident, 10.2 and 11.1.

2 As part of this presentation, we will also  
3 present a brief summary of the backfitting analysis and  
4 basis for the potential inclusion of SAMGs as  
5 requirements in this rulemaking activity. The NRC is  
6 very appreciative of the ACRS's time and interest in  
7 this proposed rulemaking activity, and we look forward  
8 to today's discussion.

9 I'll turn it over to Tim.

10 CHAIRMAN SCHULTZ: Thank you, Aby.

11 MR. REED: Thanks. I'm Tim Reed. I'm  
12 the project manager for this effort. I've obviously  
13 spoken with this committee on several occasions  
14 already.

15 I wanted to first -- first, I have two  
16 background slides. The very first one is simply an  
17 accounting, if you will, of some of the more important  
18 interactions we've had. And those are the  
19 interactions we've had with the ACRS, so they're there  
20 for you simply to recognize when they have occurred and  
21 which committees they've occurred with. I think  
22 that's just a good thing to have. And then the major  
23 interactions in the public domain, there's many more  
24 than this, are at the bottom of that slide in terms of  
25 this is a consolidation really of two major ongoing

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1 rulemaking efforts. One was the on-site emergency  
2 response capabilities rulemaking, which stemmed from  
3 Recommendation 8 principally. And the other one was,  
4 of course, mitigation strategies rulemaking, and we  
5 combined those together into what you see today.

6 So we have two regulatory basis documents  
7 and two ANPRs, and I just basically noted those on the  
8 slides so folks can see the dates for when we did that.  
9 So that's simply really a simple accounting. I thought  
10 that was worthwhile providing so nothing more about  
11 that.

12 Aby just mentioned a little bit about what  
13 we're trying to do here in terms of its relation to the  
14 near-term task force report. It should be pretty clear  
15 to most folks that the way the NRC is actually  
16 implementing regulatory actions stemming from that  
17 report were not binned the same way the NTTF binned  
18 them. And so it's resulted in a somewhat complex  
19 accounting so people can understand what parts of the  
20 NTTF report were actually feeding this rulemaking.

21 And there were several different  
22 interactions with the Commission that really  
23 facilitated that consolidation. First, principally,  
24 COMSECY-13-0002. Myself and Eric were the authors of  
25 that. We consolidated really four and seven. And

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1 what was perceived at that time was a concept that was  
2 thought to be two rulemakings going on when, in fact,  
3 there weren't. There was only one rulemaking, making  
4 EA-12-049 generically applicable. And that order, as  
5 I'm sure this committee is very well aware, is being  
6 broadly implemented and addresses really all of four  
7 and seven. In fact, more than that. So that was to  
8 make the Commission aware of that.

9 COMSECY-13-0010 was also a rack-up of  
10 basically EP and NTTF ongoing activities and how those  
11 could be consolidated into ongoing Fukushima actions.  
12 And I think the committee ought to be also aware most  
13 of that was also being addressed as part of the  
14 mitigation strategies. So that's basically,  
15 essentially, a consolidation, if you will, of those  
16 activities.

17 And, finally, most importantly, Aby just  
18 mentioned we proposed to the Commission consolidating  
19 these two rulemaking activities together and producing  
20 one rulemaking. And I think that makes a lot of sense.  
21 You know, I was a big pusher on that because I think  
22 that aligns more directly and more coherently with  
23 actual implementation out there in the industry in  
24 terms of building this new capability of strategies  
25 both into the front-end before core damage and after

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1 core damage into the SAMGs. And I think that made a  
2 lot of sense to see if we could line this thing up and  
3 line it with implementation, and that's what we've been  
4 trying to do. And the draft language in front of you  
5 today is an effort to try to achieve that integration  
6 and consolidation.

7 So as we just mentioned, this does address  
8 all of Recommendations 4, 7, and 8. It addresses 9.1,  
9 9.2, 9.3, some long-term ERDS. It does address the  
10 ERDS modernization effort. We've basically -- a very  
11 simple removal of a technology-specific language there  
12 at 9.4. It also addresses 10.2, command and control  
13 and decision-maker because, basically, that's built  
14 right into the implementation of EA-12-049. And it  
15 also addresses 11.1. Phase three of the EA-12-049  
16 addresses that issue already, as I'm sure you're well  
17 aware also.

18 So what you're seeing there is this is what  
19 we can say we're accounting for the NTTF and what we're  
20 getting done. In terms of other ways of looking at  
21 this, it's also making generically applicable two  
22 orders, large measures, mostly EA-12-049, no question  
23 about it. But we also have provisions in this to make  
24 generically applicable to spent fuel pool level  
25 instrumentation order. So you'll see there's spent

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1 fuel pool, vibrating spent fuel pool level requirements  
2 in this order, in this rulemaking also. So it does  
3 that.

4 The staffing and communications  
5 requirements you see in there, they stem from the  
6 50.54(f) request, okay? So it makes that generically  
7 applicable, if you will. And, of course, there's  
8 another ongoing issue the committee is well aware of,  
9 and that's the NTTF-2.1 feedback, and it may be a very  
10 critical aspect of this, and that's another issue we're  
11 well aware of and we're following. So, certainly, that  
12 could have a significant effect on this rulemaking, so  
13 I pulled that out there, too.

14 CHAIRMAN SCHULTZ: You anticipated my  
15 question in a way because my question was the staff came  
16 up with the idea of consolidation, but it was some time  
17 ago and there were a large number of elements that were  
18 bundled together. My question was and still is,  
19 although you've explained it a lot, as we've gone  
20 through the last 18 months, are there things that have  
21 been identified that you've considered should have been  
22 part of the consolidation? And then are there things  
23 that were originally thought could well fit together  
24 that shouldn't have been incorporated in the  
25 consolidation because they deserve their own special

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1 attention? You can answer that in the course of the  
2 presentation, if you would like.

3 MR. REED: Yes. I would point out, let me  
4 just point out something that's --

5 CHAIRMAN SCHULTZ: This slide has  
6 presented a lot of information --

7 MR. REED: This could actually get bigger,  
8 and I'll tell you why.

9 CHAIRMAN SCHULTZ: Wait a minute.

10 MR. REED: You could actually consolidate  
11 in portions of EA-13-109 if you wanted. In fact, that  
12 was a comment from industry that the severe accident,  
13 you know, capable wetwell event, you could work that  
14 in. Right now, it doesn't work in scheduler space to  
15 work that in, but you could work that in.

16 So there's been some areas where I think  
17 there's opportunities to make it even broader. If I  
18 had to do it all over, you know, and I had an ability  
19 to control time, I would do 2.1 first and then do this  
20 afterwards. Unfortunately, as this committee is well  
21 aware, we haven't been able to do that, so that's put  
22 us in a tough situation there.

23 But in terms of everything else, I think  
24 this is the most substantive requirements. I think  
25 we've got it in there. I don't know. Eric, do you have

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1 anything that jumps into your mind on that or . . .

2 MR. BOWMAN: I would also include the  
3 remainder of the BWR Mark I and II events actions as  
4 possible candidates for consolidation because the look  
5 at the filtering strategies or the release reduction  
6 portion of the containment protection and release  
7 reduction, it's so lined up with being severe accident  
8 management guidelines for those particular licensees  
9 that, if we don't consolidate the two and treat them  
10 separately, we run the risk of sending up two separate  
11 policy decisions to the Commission with different  
12 justifications and with a potential for different  
13 decisions that would put us in a bad place.

14 MR. REED: That's a very good point. And  
15 this committee is very familiar with the containment  
16 protection and risk reduction effort and the work that  
17 Marty Stutzke is doing. But if you think about it,  
18 those are SAMGs for BWR Mark I and Mark II plants. And  
19 so that directly informs SAMGs, and Eric's right: if  
20 that were to become requirements, it would make sense  
21 that those SAMGs would be built in to this because  
22 that's a specific set of SAMGs for that design, if you  
23 will.

24 CHAIRMAN SCHULTZ: So I'm anticipating  
25 that we're going to come back to this in the course of

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1 this presentation, so please don't assume that because  
2 we briefly touched on it now that you don't have to cover  
3 it later.

4 MR. REED: I'm making no assumptions.  
5 Stop me wherever --

6 CHAIRMAN SCHULTZ: All right. So I  
7 appreciate that as part of the introduction, and let's  
8 go forward with the presentation. Thank you.

9 MR. REED: So the plan here today is to  
10 simply walk through what I gave or what we provided to  
11 you, the draft language as it exists right now, and then  
12 also to touch upon some of what I think are other key  
13 aspects of the package. I apologize you don't have  
14 that package. I'm apologizing right now. But I will  
15 talk about backfit and SAMGs and some of the draft  
16 findings. Also, I think you have a lot of familiarity  
17 with the actual implementation and what's really  
18 happening right now, so I think you know the way the  
19 end state is going to look, it's a little more difficult  
20 to get our draft guidance and everything lined up to  
21 get a rulemaking thing put together. We're not there  
22 yet. So we'll talk about that, too, when we get to it.

23 So, first, I want to just walk through this  
24 thing. And stop me wherever the committee wants to,  
25 and we'll try to explain. I have a lot of help in the

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1 room. Some of this, I'm not as conversant with every  
2 aspect of the package as maybe I normally would be.  
3 This rulemaking is getting pretty large and complex,  
4 and so I'll have a lot of help in the room here if I  
5 need it.

6 So, basically, the applicability session  
7 is there because it's applying to both, basically,  
8 power reactors, whether it's an operating reactor or  
9 a new operating licensee, a combined license, Part 52  
10 combined license holder, or new applicants, okay? So  
11 it applies to, basically, all those entities. So that  
12 means it applies to both current and new reactors.

13 And in addition to that, we know about the  
14 ongoing decommissioning efforts and work in that area,  
15 and we're trying to align ourselves with that where it  
16 makes sense. So I'm trying to build into this  
17 decommissioning provisions, where that makes sense.  
18 And it does, it lines up very nicely with what we're  
19 doing, in a sense. If you look at what we're talking  
20 about, it really breaks down into functional  
21 requirements in terms of maintaining and restoring core  
22 cooling and primary containment and then maintain or  
23 restoring spent fuel pool cooling, okay? And so when  
24 you look at it that way, when I take the fuel out of  
25 the reactor vessel permanently, I can remove any

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1 provisions having to do with core cooling and primary  
2 containment and focus only on spent fuel pool cooling  
3 and secondary containment, if your design has that,  
4 okay?

5           So we've tried to build those provisions  
6 in right off the bat. Now, they're not perfect, but  
7 they're a good start, I think, and we can see where that  
8 takes us, put that out there in public domain and see  
9 if we can't fine tune that and make that even better.  
10 So that's the idea. So this is applicability, there's  
11 the decommissioning.

12           And then you also see, and George Tartal  
13 will talk more about that in a few slides, we have  
14 additional requirements for new reactors, in terms of  
15 an assessment requirement there. We can talk about  
16 that. We have a slide on that later.

17           CHAIRMAN SCHULTZ: That's important.  
18 This is an important slide, so I want the committee to  
19 be able to focus on it. I've got a question on the last  
20 line, and perhaps we'll go above that. And my question  
21 is, with regard to decommissioning, we say one  
22 statement, once the irradiated fuel is removed from the  
23 spent fuel pools, all requirements cease. It's the  
24 line above that that I wanted to focus on. No reactor  
25 requirements, the fuel is permanently removed from the

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1 reactor.

2           It seems, well, there are requirements  
3 placed upon the spent fuel pool that have been developed  
4 because the reactor is operating. Are we looking  
5 carefully at the requirements that we have once the  
6 reactor is not operating with regard to what we've asked  
7 for the spent fuel pool? In other words, the  
8 stand-alone spent fuel pool, are we looking at that  
9 particularly and determining what does not need to be  
10 done because the reactor is not operating and the  
11 operator's attention is not focused on both elements:  
12 the reactor operating, as well as the spent fuel pool?  
13 That's one of the key issues that came up as a result  
14 of Fukushima. Are we able to set up a process that  
15 provides the divorce between an operating reactor and  
16 the spent fuel pool so that we don't retain some  
17 elements of spent fuel pool protection that, in fact,  
18 should not be required if the reactor is not operating.

19           MR. REED: Yes. We're thinking that way,  
20 exactly that way. I think if you look at some of the  
21 facilities that have been recently decommissioned,  
22 you'll see that they removed the EA-12-051  
23 requirements, okay? That's the spent fuel pool level  
24 instrumentation requirements. There's no distraction  
25 any longer that's possible. So that doesn't make

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1 sense, so we recognized that.

2 And I'll also say that, right now, it's not  
3 perfect what we have there. I think if you look,  
4 there's a certain period of time that, once it passes,  
5 you could probably say that what I really only need for  
6 that spent fuel pool is EDMGs, okay? But right now you  
7 see it written, basically, all the spent fuel  
8 provisions that might apply.

9 So we realize that's there, too. And I  
10 think that's an area where we want to get some feedback  
11 and see if whether we can make that a little bit more  
12 fine-tuned and help make that a more efficient process  
13 in decommissioning. So, yes, that's exactly our  
14 thought process: what do you need for spent fuel pool  
15 only once you're into that domain?

16 MEMBER RYAN: I think, when I think about  
17 a spent fuel pool, it's empty, all the fuel is gone,  
18 and it's been cleaned and maintained and whatever you  
19 want to look at. What kind of a license would apply  
20 for, under what part? I mean, to me, it's a materials  
21 --

22 MR. REED: For this situation you're  
23 talking about?

24 MEMBER RYAN: Say again?

25 MR. REED: You mean for an ISFSI,

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1 independent spent fuel pool installation?

2 MEMBER RYAN: No, I'm just thinking if you  
3 want to tear it down, if you want to get rid of it. If  
4 you want to have it for a different purpose, then you'd  
5 have to figure out what licensing applies for that  
6 purpose.

7 MR. REED: You've stumped me.

8 MR. BOWMAN: I think I understand what  
9 you're talking about, but we aren't addressing that  
10 problem. What we're looking at is at what point can  
11 we cease to have a formal requirement for mitigating  
12 strategies for spent fuel pool that still contains  
13 irradiated fuel? If you look to the relaxations we've  
14 done for the decommissioning licensees Kewaunee and  
15 Crystal River and we've got the request for San Onofre,  
16 we looked at what's the decay heat level remaining in  
17 the fuel that's within the pool, how long would it take  
18 before a problem would occur that would require  
19 positive action on the part of the licensee, and is  
20 there sufficient time for the licensee to make ad hoc  
21 mitigation strategies, rather than having the formal,  
22 I'm going to get the pump there in such a time and start,  
23 well, pouring water in or spraying water over the fuel.  
24 We haven't got the language like that in the proposed  
25 rule. We'll be seeking feedback from stakeholders on

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1       whether or not that should be formalized in that manner,  
2       recognizing that we'll still have the mitigating  
3       strategies that came out of the B5B effort in place,  
4       is it necessary to retain these other mitigating  
5       strategies and at what point can we remove those?

6               MEMBER RYAN: That's helpful. There's a  
7       lot of detailed work in front of you, I guess.

8               MEMBER REMPE: I meant to get you on the  
9       prior slide and I wasn't fast enough. But as you  
10      mentioned, we don't have the complete, like, the  
11      guidance for this draft rule. When are we expected to  
12      get it?

13              MR. REED: Well, I'll give it to this  
14      committee when I get it. How's that?

15              MEMBER REMPE: Is that going to happen in  
16      the next year?

17              MR. REED: Yes. Actually,  
18      realistically, we meet with the committee on the 4th  
19      and we have two working days next week, so I'm in the  
20      office, and there's three the following week and we have  
21      to meet with the full committee. So I wouldn't expect  
22      miracles. We might be able to give the committee more,  
23      better language. We are changing the language. It's  
24      still changing, and we're still having a lot of internal  
25      interactions.

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1 MEMBER CORRADINI: For the rule?

2 MR. REED: Absolutely, yes. And in terms  
3 of the guidance, I think you've got a pretty good feel  
4 of what the mitigation strategy guys are going to look  
5 at from the discussion yesterday. That work is  
6 ongoing. Eric is working with the folks in the  
7 industry to get Rev 1 and get that in a way that we can  
8 endorse that.

9 We have a lot of work, we've already  
10 interacted with industry on NEI-13-06. I think we're  
11 in a good place there. We can probably get that  
12 endorsement. So if you take a look there, we're  
13 probably very closely aligned there. And it comes down  
14 to NEI-14-01, which is really about some of this  
15 integration command and control and SAMGs. And so that  
16 brings up the SAMGs issue, and that's been a -- we'll  
17 get to that here in a bit. I think that's the main area  
18 where we have to focus and see what we want to do there.

19 So if you take a look at the supporting  
20 guidance, it's pretty much the supporting guidance that  
21 would be built into this. So that's not very  
22 satisfying. I'm sorry, but that's -- I don't know --

23 MEMBER REMPE: It is what it is.

24 MR. REED: It is. Actually, we're making  
25 progress, and we're really doing the best we can. But

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1 we're not, we're not in any way, shape, and form, right  
2 now to do something by December. I mean, that's the  
3 practical reality. But we've done an awful lot of  
4 internal interactions, in fact, I think that we need  
5 to work through to also inform this rulemaking. I  
6 think this committee is pretty aware of that, too.  
7 How's that for absolutely I don't know?

8 MEMBER REMPE: Unclear answer?

9 MEMBER CORRADINI: I took it as to be  
10 determined.

11 MR. REED: Yes, that's it exactly. It's  
12 an awful lot of words to say to be determined.

13 CHAIRMAN SCHULTZ: Let's go forward, Tim.  
14 Thank you.

15 MR. REED: So, you know, I think this is  
16 probably the most important part of the rule. I view  
17 paragraph B as kind of the heart of the rule, if you  
18 will, the central piece. And we talked about building  
19 this thing and bringing it together and integrating.  
20 To me, this is the part that's the integration part.

21 It's basically, very simply put, the first  
22 portion right there is really FLEX or what the staff  
23 called station blackout mitigation strategies.  
24 That's paragraph B1. Now we're calling it beyond  
25 design basis external event mitigation strategies and

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1 guidance.

2 Then we have the EDMGs, which are already  
3 in existence, of course. They were put in place by the  
4 B5B of the ICM order of 2002, then remained generically  
5 applicable to the power reactor severity rulemaking as  
6 50.54 changed, too. That's already in place, too, and  
7 we would move those in because I think folks probably  
8 are now very understanding that those strategies are  
9 almost identical, in large measure, to many of the  
10 strategies here. It makes a lot of sense for them to  
11 be here.

12 And then, finally, we have the one  
13 provision that are not requirements right now. So we  
14 have an order requirement that we would put in place,  
15 a currently existing requirement in the current federal  
16 regulations, and we have a voluntary initiative SAMGs.  
17 So those are the three guideline sets, if you will, that  
18 we would integrate into the currently-existing  
19 symptom-based EOPs.

20 So that's how we've bulked these together,  
21 and it lines up very nicely. They're all basically  
22 functionally based. It's very nice how it worked.  
23 And what we want, of course, licensees then to do is  
24 to maintain this integrated accident response  
25 capability that has these basic guideline sets and,

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1       essentially, seamlessly builds them into their  
2       symptom-based EOPs, okay?

3               And then I'll hold on this slide for a  
4       second. It's to be worded with sufficient staffing and  
5       command and controls. We'll get to the next slide.

6               So I'll stop here and let folks digest this  
7       a little bit. And if you take a look at the draft rule  
8       language, basically that's what we're trying to do.  
9       Now, what that means is, as a practical matter, as a  
10      practical matter and what you've heard so far and what  
11      you heard yesterday all day long is FLEX right now being  
12      implemented. It's being implemented into, for PWRs,  
13      these ECA-0.0, I believe, is the station blackout EOP.  
14      What that does is builds FLEX or the station blackout  
15      mitigation strategies right into the EOPs and a station  
16      blackout EOP. The EOPs right now do have transitions  
17      to the SAMGs. They do exist right now. Of course,  
18      voluntary SAMGs do exist, okay? So those transitions  
19      do exist. Of course, I think we'll be a little bit more  
20      thorough in that integration than what exists right now  
21      if SAMGs do become requirements, okay? And extensive  
22      damage mitigation guidelines also already exists,  
23      although the complexity there is, of course, you lose  
24      command and control and you have to reconstitute  
25      command and control. But once you do that, you're

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1 going to be back into pretty much a normal command and  
2 control situation with the EOPs.

3 MEMBER RAY: Tim, I can't imagine anybody  
4 taking exception to the idea that we ought to do what  
5 you're doing in anticipation of something being,  
6 exceeding the design basis, for example, or, for  
7 whatever reason, becoming a severe accident. But do  
8 you think, given all that you've just recited and gone  
9 through, that anybody sees what you just described as  
10 necessarily a substitute for changing the design basis?  
11 In other words, is this seen by anybody as an  
12 alternative, as opposed to simply preparing for  
13 something that inevitably we should prepare for?

14 MR. REED: I hope it's not. In other  
15 words, this is all beyond design basis right there.

16 MEMBER RAY: Whatever design basis  
17 happens to be.

18 MR. REED: That's right. It is.  
19 Everything here is clearly beyond design basis. They  
20 have to provide that additional capability.

21 MEMBER RAY: Right. And it certainly  
22 fills an area of need and isn't an alternative to some  
23 other regulatory action that we would take? Okay.

24 MR. BOWMAN: If I could add -- this is Eric  
25 Bowman. One of the fundamental reasons behind why the

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1 order EA-12-049 was issued was a recognition that there  
2 can be uncertainties in calculating hazards from  
3 external events.

4 MEMBER RAY: Absolutely, yes.

5 MR. BOWMAN: Such uncertainties would  
6 make engineering a solution more difficult, and that's  
7 why you get the flexible response that is inherent in  
8 the industry's FLEX program. One of the members  
9 yesterday mentioned an even more flexible response that  
10 might have been a better way to deal with the situation.  
11 But going in and deciding that you know enough to  
12 engineer a solution to something that's beyond design  
13 basis event presumes that you aren't going to have an  
14 event that is unpredicted yet. So it's --

15 MEMBER RAY: Well, I mean, I could argue  
16 with that. I don't think we should. The implication  
17 of what you just said is, well, this is a better way  
18 to go than to design for the event, and that isn't, I  
19 don't think that's the intent here.

20 MR. BOWMAN: It's a different way to go.  
21 We struggled with the --

22 MEMBER RAY: The word different is almost  
23 the same as the word alternative, and that's what I  
24 asked Tim is is this an alternative and he said no. And  
25 I'm saying I don't see it as an alternative personally

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1 because I think you're always going to need to be  
2 prepared for something that exceeds what you were  
3 designed for. But your recitation makes it sound more  
4 like, well, maybe it is an alternative.

5 MR. BOWMAN: It's a different way of  
6 approaching the problem. We have not ruled out  
7 modifying the design or licensing basis if we have  
8 sufficient information to justify doing that.

9 MEMBER RAY: Well, I think, at times,  
10 that's not very clear, but I wanted to be clear about  
11 it.

12 MR. REED: Yes, I think this is an extended  
13 set of tools, I think additional stuff for the toolbox,  
14 you know. And I think that's kind of the nice thing  
15 about some of this, some of the benefits of the  
16 mitigation strategies work that's going on. It's  
17 provided an extensive and real additional capability  
18 for these folks. I'm not sure you appreciate that.  
19 This is a real deal, and that capability is available  
20 in a much broader way than I think people may recognize.  
21 All those features can be made available after core  
22 damage. And in fact, many of those exact same  
23 strategies are better than the ones that were the EDMGs  
24 originally. And they're the same, but they're only  
25 better. They're much more capable. They're

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1 in-depth. I think they're all site-wide.

2 So there's a lot of benefits to this stuff.  
3 So this stuff does really integrate together and just  
4 extends that design basis.

5 MEMBER RAY: And, again, nobody is going  
6 to argue that it's better to avoid core damage than it  
7 is to mitigate it.

8 MR. REED: Absolutely, absolutely.

9 MEMBER RAY: And we lose sight of that  
10 sometimes, I think, just because of all the rhetoric  
11 and how fast we go through these things.

12 MR. REED: Absolutely, absolutely. In  
13 fact, if I don't remember to say that -- I think I'll  
14 try to say that in the SAMGs space. If you're in SAMG  
15 space and you're trying to reduce risk and you have a  
16 substantial amount of risk there, my first question is  
17 you better stop it from ever going there. The best way  
18 to answer that problem is never go to core damage, and  
19 that's the way we've always done it.

20 So I agree. But right now, we're really  
21 talking about stuff that's not well defined, it's an  
22 additional, kind of all-hazards design basis  
23 capability that people can have and use if they need  
24 to.

25 MEMBER RAY: And it's needed. Don't get

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1 me wrong, but, I mean, it's murky at times whether we're  
2 talking about an alternative, as opposed to something  
3 we ought to have because there's no way of knowing that  
4 we've got all the bases covered.

5 MR. BOWMAN: Well, the other piece of it,  
6 as well -- it was brought up yesterday. I forget who  
7 brought it up, but it provides another tool in the  
8 toolbox. One thing the staff is struggling with right  
9 now is providing guidance on to what extent the  
10 mitigating strategies could be credited and a  
11 probabilistic look at the risk for the plant and the  
12 significance determination or other action, but it  
13 reduces the risk for licensees within the design basis,  
14 as well, rather than merely changing the capability of  
15 the items that are the design basis protection.

16 MEMBER RAY: Yes. But, again, when you  
17 contrast it that way, it makes it sound like, well,  
18 let's do this instead of that. That's where I think  
19 we need more understanding.

20 MEMBER REMPE: So last night I was  
21 thinking about this some more, too, and maybe the answer  
22 is, again, I don't know yet. But if something were to  
23 happen and the equipment wasn't kept up or FedEx isn't  
24 kept up, what would happen on enforcement? Would all  
25 of the organizations that belong to it be equally fined,

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1 or would you -- I mean, have you started to think about  
2 that yet or be placed under some sort of restriction?  
3 And I didn't hear that discussed yesterday, and I was  
4 just thinking about it last night.

5 MR. REED: That's definitely thought  
6 about.

7 MR. BOWMAN: We have thought about it. We  
8 haven't come to a final conclusion on what the way  
9 forward for oversight, particularly of the off-site  
10 organizations, like SAFER, will be. We've got  
11 options, like the vendor oversight program.

12 For them, though, we have to recognize that  
13 they're a backup to all the equipment that's already  
14 on the site. So --

15 MEMBER REMPE: It's a backup, but if one  
16 starts giving them more credit for the backup, it's  
17 going to be an issue.

18 MR. BOWMAN: And that's where it also has  
19 to, we also have to look to how much does the existence  
20 of the off-site equipment truly affect the on-site  
21 risk.

22 MEMBER REMPE: It was just a question I was  
23 thinking about. Thanks.

24 MEMBER STETKAR: Tim, I've got a simple  
25 question, and this is something you're going to skip

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1 over, so I might as well get it out. In the mitigation  
2 strategies, you said that, indeed, the rule will apply  
3 for both operating reactors and new reactors. I just  
4 want to make sure that I understand some words in here.  
5 It says strategies and guidelines to mitigate beyond  
6 design basis external events from natural phenomena  
7 that result in extended loss of all the AC power  
8 concurrent with a loss of normal heat sink to the, loss  
9 of normal access to the ultimate heat sink or for a plant  
10 for which the final safety analysis report references  
11 Appendix D or E to 10 CFR Part 52 a loss of normal access  
12 to the normal heat sink. Now, in regulatory space,  
13 that means AP1000 and the ESBWR. Can you explain that  
14 "or?" Is that an exclusive "or?" It is an "and?" Is  
15 it "do the ESBWR and AP1000, you need to have  
16 mitigating strategies for an extended loss of AC  
17 power," yes or no?

18 MR. REED: I'll let -- George, do you want  
19 to . . .

20 MR. TARTAL: I think I'll deflect this one  
21 over to --

22 MR. REED: Okay. That's actually an NRO  
23 question.

24 MR. MCKIRGAN: So if I could, yes, this is  
25 John McKirgan. I think the simple answer is yes. The

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1 AP1000 designs and the ESBWR do have strategies. I  
2 think what you'll hear, and maybe I'll defer part of  
3 the answer to that question to after George presents  
4 his piece of the language, what you'll hear is, you  
5 know, the nature of those strategies are a little  
6 different. Because of the design, they have more time  
7 to address the issue. And so I think if you've had a  
8 chance to read the original version of NEI-12-06 and  
9 the ISG, there was a specific appendix in that guidance  
10 for the AP1000 design. And so that was a little  
11 different.

12 MEMBER STETKAR: Those are NEI reports.  
13 This is proposed NRC rulemaking so . . .

14 MR. MCKIRGAN: You're right. Let me see  
15 if I can clarify. So the AP1000 sites have strategies  
16 that they proposed to the staff. We're reviewing  
17 those. They have committed to the SAFER, the FLEX, the  
18 phase three portions of that approach, and so that is  
19 our expectation.

20 So they do have these strategies. We're  
21 reviewing verbal submittal now, as a matter of fact.  
22 Vogtle received an order. There's a fairly complex  
23 history that I don't want to get into now about who  
24 received what when. Vogtle received an order, Summer  
25 received a license condition. But we can defer that

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1 and we'd be happy to share that --

2 MR. BOWMAN: I think I might be able to add  
3 some clarity to it. In the order EA-12-049, currently  
4 operating reactors were subject to the requirements  
5 that were included in Attachment 2, which required that  
6 the guidance and strategies be capable of addressing  
7 simultaneously an extended loss of all alternating  
8 current power and a loss of normal access to the  
9 ultimate heat sink.

10 The COL holder at the time was Vogtle 3 and  
11 4. They were subject to the requirements of Attachment  
12 3, and that was phrased as the mitigating strategies  
13 that had to be capable of addressing a simultaneous  
14 extended loss of all alternating current power and a  
15 loss of normal access to the normal heat sink. In  
16 recognition of the fact that, during the station  
17 blackout period, the first 72 hours, an AP1000 licensee  
18 would not lose access to the ultimate heat sink because,  
19 at that point, the ultimate heat sink is the atmosphere.  
20 It's not going through the circ water system or some  
21 other fluid-based system to get the heat out. So  
22 that's why the phrase was the normal access to the  
23 normal heat sink, and that's how it should be read.

24 We may need to modify the language to make  
25 it clearer if it's confusing to anyone. But the intent

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1 is making that set of requirements generically  
2 applicable, and we include the ESBWR as the other  
3 passive plant that has the same sort of treatment.

4 MEMBER STETKAR: Eric, thanks. That  
5 helps me a lot. I hate to quibble over words. I read  
6 the "or-comma" with a parenthetical phrase as somehow  
7 an exclusive or what I heard you say is it's actually  
8 a logical "and." That's what I heard you say. Now,  
9 if you didn't intend it to be that way, think about it  
10 carefully. In other words, if I need to look at  
11 mitigating strategies for an AP1000, I need to account  
12 for an extended loss of AC power and loss of normal  
13 access to the normal heat sink. If you don't intended  
14 it to be that way, if you intend it to be something  
15 different, make it clear.

16 MR. BOWMAN: Well, yes. Personally, I  
17 love to quibble over words. It was supposed to be  
18 between the loss of AC power and either loss of --

19 MEMBER STETKAR: Or for these things, loss  
20 of -- okay.

21 MR. BOWMAN: And we'll take that back.

22 MEMBER STETKAR: Okay. I just hung up on  
23 it because I tend not to look at the long history of  
24 stuff that's evolved, especially in, you know,  
25 industry, you know, documents and stuff like that.

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1 This is rule language, so, I mean --

2 MR. REED: And by the way, in rule  
3 language, every word matters.

4 MEMBER STETKAR: It does.

5 MR. REED: That's why it makes it hard.

6 MR. MCKIRGAN: And if I could, I just  
7 wanted to make sure it was clear, those licensees and  
8 applicants are required to have these strategies.

9 MEMBER STETKAR: That's -- right at the  
10 moment, given the Vogtle and Summer situation, I just  
11 want to make sure that the next AP1000 that gets built  
12 that isn't Vogtle or Summer, make sure that they know  
13 what they need to follow.

14 MR. REED: Should I -- I go too fast on  
15 these, and I recognize that. So I'm going to try to  
16 slow down. I talk way too fast.

17 CHAIRMAN SCHULTZ: Well, I guess, Tim, my  
18 questions are, it's in the language, as well, and I'm  
19 taking that you've got some fairly general terms here  
20 in this slide. And I'm presuming that was a way to  
21 frame the rulemaking process and that the detail  
22 associated with establishing what those general terms  
23 means will come out in the rulemaking process. And I'm  
24 looking particularly at would make them generically  
25 applicable. We could talk about that for the rest of

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1 the day, I'm sure, what that means: generically  
2 applicable. And then also regulation would require  
3 SAMGs. So, I mean, that's a general going-forward  
4 mission, and the details of determining what those  
5 requirements would be, there's a whole spectrum of both  
6 actions and requirements and obligations.

7 We talked yesterday a moment about how, so  
8 we have beyond design basis external events and we want  
9 to be sure that, as we put our attention toward that,  
10 we don't put so much attention toward that that we upset  
11 all of those things that we want to do to assure  
12 appropriate, safe, routine operation of the facility.  
13 So we have to keep that in mind as we go forward with  
14 all of this.

15 MR. REED: Well, I think probably several  
16 of the members of the committee know that I've been  
17 involved with FLEX regulations since the get-go, and  
18 I've also been involved with risk prioritization  
19 initiatives, so I'm very familiar with what is,  
20 frankly, an extraordinary amount on the plates of  
21 licensees out there, and they're having to, basically,  
22 prioritize that and make decisions, tough decisions.  
23 You heard a little bit of that yesterday at the very  
24 end, and that is a very big concern of mine, too.  
25 There's been an extraordinary amount of work by very,

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1 very good people, very talented people. Thousands and  
2 thousands of hours. A lot of capital has already been  
3 spent. A lot going into implementing the mitigation  
4 strategies order.

5 And as we extend it into other areas, it  
6 gets me very concerned that we're taking a lot of  
7 attention on capital resources and focusing away from  
8 the day-to-day operation and reliability stuff that  
9 really matters at a much higher level in terms of  
10 safety. So I definitely have that very same concern,  
11 and I think the committee is sensing that, too.

12 It makes sense to have some of this stuff  
13 in place, no question. But if we take too much  
14 attention and focus and push it on that, you know,  
15 looking there, guess what? We're not making it better,  
16 and we're probably making it less safe. So we've got  
17 to be careful about this and how we do that.

18 So, absolutely, I agree 100 percent. That  
19 should be our mind set as we move forward.

20 MR. BOWMAN: To address the other part of  
21 your question or comment, the phrase of making it  
22 generically applicable, it's intended to be a  
23 recognition that what we're doing is not merely  
24 codifying the words that went out in the order  
25 previously. We're taking into account the lessons

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1 that have been learned and the implementation. That's  
2 why we aren't just going forward and keeping in place  
3 the interim staff guidance that was issued in 2012, but  
4 we're working up the new regulatory guidance to  
5 accompany the rule. And that's why the words that  
6 we're proposing in the rulemaking don't exactly match  
7 what it says in the order.

8 CHAIRMAN SCHULTZ: I appreciate that  
9 explanation, Eric, because that's not how I think  
10 everybody would interpret generically applicable. So  
11 that's, it's very interesting that you provided an  
12 elaboration which is different than what I would have  
13 taken, and I think many others would have taken a  
14 different interpretation of it.

15 MR. BOWMAN: When you do orders --  
16 although in this case, in Fukushima's case, we did have  
17 quite a bit, I think it was an unprecedented amount of  
18 public participation in those orders. Prior to that,  
19 I'm not sure that's ever happened in order space.  
20 Certainly, a ton of public participation in development  
21 of the guidance for the order, but there was actually  
22 even public involvement prior to the March 12th, 2012  
23 orders. But that's not like -- in rulemaking space,  
24 we have a lot of openness and a lot of public  
25 participation. External stakeholders get much more

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1 ability to influence the process, and we've learned  
2 things in implementation space.

3 All of that factors into it, and so we try  
4 to find out did we do it right, did we hit the mark,  
5 shouldn't we have done it, can we fix it, can we do some  
6 things differently? That's making it generically  
7 applicable. I don't like the word codifying because  
8 codifying says, hey, we already did it, we're just going  
9 to put it in the regulations. No, that's not part of  
10 rulemaking and that's not the way we do things. So  
11 that's why I'm pretty sensitive to the words  
12 generically applicable, and that's what they mean when  
13 I use them and that's exactly what --

14 CHAIRMAN SCHULTZ: I appreciate that.  
15 I'm glad to get it on the record. Thank you.

16 MR. REED: All right. So we're talking  
17 about the way this paragraph B is structured, these  
18 three guidelines, guideline sets, if you will, and  
19 integrating them into what are currently in existence  
20 as the symptom-based EOPs that went into place after  
21 TMI. And there was an awful lot of work during the  
22 1980s. Some of the folks here were involved with that.  
23 And the way this is structured is consciously  
24 structured to try to leave the EOPs and all that work  
25 intact, not unnecessarily or inadvertently cause any

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1       need to go back and basically dig up any of that. That  
2       work should stay intact, and we tried to structure it  
3       such that we want the, you know, connections, the  
4       transitions, and all that to be built into these  
5       guidelines such that they are basically one smooth set  
6       of, if you will, or one integrated seamless capability  
7       across the guideline sets.

8               So as a practical matter, you heard how the  
9       FLEX guidelines are being built right into the station  
10      blackout EOP, so you understand how that goes. And I  
11      just give you one example.

12             So that's the idea, to integrate them and  
13      leave that work in place and, hopefully, that's what  
14      we want to try -- this rulemaking language should be  
15      structured in that way. And if it's not, I certainly  
16      want to hear about it because there's no intent to  
17      revisit the EOPs and that work that's been done in the  
18      1980s. So that's why it's done that way.

19             I believe previous draft versions, you  
20      might have seen them more listed altogether, and that's  
21      why you see a little bit of change on the language the  
22      way it is today.

23             And then I think the other thing is to  
24      recognize that, once you have this integrated response  
25      capability, well, you need to have command and control

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1 in place to implement that across these different  
2 guideline sets and the way the accident proceeds and  
3 enough people on the staff to make that happen. In my  
4 personal view, I think, and this is another area we want  
5 to understand, I believe everything that's been done,  
6 in terms of the staffing analysis and that work there,  
7 should, in fact, be the staffing that we'd require for  
8 this entire response capability. And I think that  
9 command and control structure that's in place right  
10 there should be sufficient, too. And why I'm saying  
11 that is pretty simple. If you have the command and  
12 control structure to deal with a beyond design basis  
13 external event for your entire site, damaging multiple  
14 units, and being able to handle that situation, making  
15 calls to off-site resource centers and doing all that,  
16 I think you could then extend that into a core damage  
17 scenario. I think it's actually pretty simple to do  
18 that. In other words, you already have the command and  
19 control in place.

20 So that's what I'm trying to say there. In  
21 other words, there's a little bit of a difference here.  
22 The command and control and staffing right now has been  
23 linked up directly to mitigation strategies, the  
24 mitigation strategies order they implement right now,  
25 but will they support that with also SAMGs? It's a

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1       slight spread, if you will, in the regulatory into  
2       SAMGs, too. But I don't think it makes a real impact  
3       on licensees, and I want to make that clear as another  
4       area where I would point this out and say, hey, look  
5       here, what are your thoughts? So we have to understand  
6       what that is there and if, in fact, if it's real.

7               MEMBER SKILLMAN: Have you tested that  
8       assumption with a couple of different licensees?

9               MR. REED: Not at this point. I'm doing  
10      it verbally right now, and it's something I would want  
11      to ask questions about to see if, in fact, that's the  
12      reason it's back there. And every one of these areas,  
13      this is the great thing about rulemaking, I can put a  
14      proposed rule out like that, ask all these questions,  
15      try to get all this, and try to hit the mark on the final  
16      rule I'm getting right, you know, so I don't do anything  
17      that isn't going to necessarily impact. So this is an  
18      area where I'm just trying to say I think it looks like  
19      it's all in place, and I don't believe it's an impact,  
20      but, hey, tell me, tell me what it is.

21              We're going to be ahead of schedule here  
22      if we don't start getting this committee to wake up and  
23      ask questions.

24              MEMBER CORRADINI: We can start arguing  
25      with each other if you'd like.

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1 MR. REED: If I have to, I'll try to get  
2 that to go. I've been in the ACRS a long time, and  
3 that's a strategy I use if I have to.

4 So the next thing I'll -- I'm going to skip,  
5 and you're going to see paragraphs C and E. I'm holding  
6 D for the next slide, and that will be George's slide.  
7 So this is just convenience to fit it all in one slide.  
8 And I'll start off C, but we have the expert here if  
9 you want to get into the details. It's Eric on  
10 equipment requirements from the mitigation strategies  
11 order. But once you see, and if you go to paragraph  
12 C --

13 MEMBER STETKAR: We do. So I'll just slow  
14 you down and stop you right there. The words say  
15 equipment relied on for the mitigating strategies  
16 required by paragraph B1 of this section must be  
17 reasonably protected from the effects of severe natural  
18 phenomena that are as severe as the design basis  
19 external events in the licensing basis for the  
20 facility. That means we design it, we make sure that  
21 this equipment as good as but not necessarily any better  
22 than any of the equipment that is disabled by the exact  
23 event that we're trying to protected against.

24 I have a real personal -- this is  
25 subcommittee, so I can say I have a real personal

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1 problem with that notion. If this equipment is  
2 supposed to protect us against events that are more  
3 severe than the events for which we've designed the  
4 plant, why do we not have assurance that it has margin,  
5 and we can define what that margin is in guidance but  
6 margin, additional margin against those events.  
7 Because I read this, and it just says if the stuff in  
8 the plant is going to fail at a 0.5g earthquake, this  
9 stuff has equal likelihood at failing at that same 0.5g  
10 earthquake. We don't have to design it to have a lower  
11 likelihood of failing at that same earthquake, so what  
12 are we buying?

13 MEMBER CORRADINI: Can I ask -- so I'm kind  
14 of with John, although yesterday in the discussion with  
15 the utilities I had the sense that they felt there was  
16 margin. But I think there's a need to somehow quantify  
17 it or at least recognize --

18 MEMBER STETKAR: In the rule, I'm  
19 sensitive in a rule that you do not want to specify how  
20 to do that. You want to specify the intent. And to  
21 me, the way this reads is the intent is one does not  
22 need to design it with any different thought process  
23 than I design the safety-related stuff in the plant.  
24 Not any worse, certainly; but not any better. It does  
25 not need any additional margin. So I'd like to kind

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1 of explore that. Again, notwithstanding any other  
2 industry guidance because industry guidance can say  
3 whatever it is. This is rulemaking.

4 MR. BOWMAN: This is an area where we may  
5 wind up changing the rule based on the outcome of the  
6 draft COMSECY that will be subject to discussion later  
7 on. Where we are with this is a direct result of the  
8 direction that we got in the SRM to COMSECY-11-0093 that  
9 told the staff at the outset of the beginning of this  
10 regulatory action to take the actions that had been  
11 recommended in Recommendation 1, which were -- the  
12 major one of concern that would have allowed us to do  
13 that was the establishment of an extended beyond design  
14 basis limit. Being told, no, you cannot in these  
15 regulatory actions establish an extended beyond design  
16 basis limit, it took out, essentially, the option that  
17 had been recommended in the portions of the NTTF report  
18 Recommendation 4.1, in particular where the task force  
19 had recommended adding an additional 15- to 20-foot  
20 margin for the flooding hazard.

21 So that's where we were with it. If you  
22 look at the wording that was in the order, it was a  
23 little bit different than the wording here. It just  
24 said reasonable protection against external events,  
25 and the industry guidance, if you look at it, does point

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1 to other information about hazards. But we're very  
2 sensitive to arbitrarily choosing an amount of margin  
3 to add to the design basis. And the other thing is,  
4 recognizing that if you're safety-related structure  
5 systems and components are only protected to a certain  
6 level, there may be no benefit to having something that  
7 is protected to a greater margin than you require for  
8 the safety-related structure systems and components.  
9 If I have a generator that's protected to 20 feet above  
10 the protection that's afforded the electric power  
11 distribution system, it's great. I have a generator  
12 that will run, but I don't have anything to connect it  
13 to.

14 So that's the dilemma we had, in large  
15 part. Tim had mentioned in the beginning of this  
16 presentation, if we had the opportunity to accomplish  
17 the reevaluation of the external hazards prior to  
18 embarking on the mitigation strategies development, we  
19 probably would have come up with a different set of  
20 requirements. But we are where we are with it, and  
21 that's why we've got the proposal that Mr. Reckley's  
22 drafted that's going to be presented to the commission  
23 to come to a different conclusion.

24 MEMBER STETKAR: Let me stop a moment  
25 because you guys are really good about monopolizing the

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1 time, so I'll stop right here. I hear what you're  
2 saying, and, if I was someone who basically did not want  
3 to do something, I could interpret all of what you said  
4 the way you said it. I'm now seeing words in a rule.  
5 And, again, I am not advocating that a rule should  
6 specify how to do it. A rule should -- the term  
7 specify, the intent or what should be done.

8 The rule now says effects of severe natural  
9 phenomena that are as severe. That is now an even more  
10 strong limit that I don't even have anything more  
11 severe. I have to think of things that are as severe  
12 as the design basis. So it's even more restrictive  
13 than what you said now in the rule language. And,  
14 again, in a rule, why can't you say that it should have  
15 additional margin against events that are as severe?

16 MR. REED: Because I have to justify that  
17 in backfit space, so I need to have a rational backfit  
18 justification for imposing that new requirement and  
19 that would be a substantial new requirement. So while  
20 I understand that rulemakings establish the minimum set  
21 of requirements and if I'm going to go beyond that I  
22 need to have a very sound basis. I mean, I know that's  
23 process. I understand that. But that's the reality  
24 in rulemaking space.

25 MR. BOWMAN: And the other reality is how

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1 much additional margin should there be? Is that  
2 something that the commission should delegate to me to  
3 decide, or who is supposed to make that decision? We  
4 do have the ongoing reevaluation of the external  
5 hazards under NTT-2.1. You see the language as it is  
6 because we do not want to get ahead of the decision on  
7 the part of the commission in changing the language to  
8 presuppose a policy decision that they haven't made  
9 yet.

10 MEMBER CORRADINI: Can I have you guys  
11 repeat everything you just said because what John is  
12 suggesting seems reasonable. How you put it in the  
13 language, it appears to affect you. So say it one more  
14 time of why it can't be because one could think of at  
15 least as severe or as severe with margin, and then you  
16 said that can't be done. One more time.

17 MR. REED: Sure. I mean, if I were to say  
18 let's put in some requirements to say you shall have  
19 additional margin on protection of equipment that  
20 you've already put in place right now to the tune of  
21 \$3 or \$4 billion in EA-12-049. Guess what I just did?  
22 I raised the protection level on all the equipment you  
23 just implemented. They're going to have to go -- it's  
24 going to be an extensive amount of new modifications  
25 and new costs. Okay. What's the benefit for health

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1 and safety? Where am I going to be on 50.109 backfit?  
2 Where's my safety benefit? Do I have a substantial  
3 additional benefit with regards to safety, and are the  
4 costs, both indirect and direct, justified in view of  
5 that?

6 MEMBER STETKAR: So because of time  
7 constraints, because we have to get orders issued, and  
8 because the industry decided that they will follow  
9 their interpretation of a very restricted notion of  
10 what I need to do, and they took the risk of that, we're  
11 now in the situation where we are. Is that a fair  
12 characterization, or is that an unfair  
13 characterization?

14 MR. RECKLEY: This is Bill Reckley.  
15 We're going to talk about this a little bit later this  
16 morning. And I know it's a bit confusing because  
17 you'll have basically two things in front of you to  
18 write letters about in the early December meeting. One  
19 is the rule language. And as Tim and Eric are  
20 describing, they weren't constrained because the  
21 Commission hadn't made a decision. Their constraint  
22 was because, you know, I had failed to get that paper  
23 up earlier to ask the Commission to weigh in on  
24 basically replacing that language about as severe as  
25 the design basis with what we were being asking in the

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1 COMSECY, which the language will become -- well, I won't  
2 say what the language is. I'm not a rulemaker. But  
3 the effect will be that the design basis language will  
4 be replaced with the reevaluated hazards coming out of  
5 Recommendation 2.1, which is the guidance used for  
6 citing of new plants.

7 MEMBER STETKAR: But, Bill, that is still  
8 -- I'm glad you said new plants, so let's divorce it  
9 from the existing fleet because I don't want to get into  
10 words over those. For a new plant, that will become  
11 the design basis, right?

12 MR. RECKLEY: Largely, yes.

13 MEMBER STETKAR: Okay. This says, this  
14 says for a new plant I do not need to design any of my  
15 mitigating strategies with any more additional margin  
16 above that design basis. So we'll keep it in the  
17 abstract new plant arena because it's a little bit less  
18 politically incendiary to do that.

19 For a new plant then where I have the new  
20 hazard, I have the new flood level, at least our  
21 snapshot of those in time, those become the design basis  
22 for that new plant. This says for that new plant I  
23 don't need any margin above that, right?

24 CONSULTANT SHACK: If you go to the next  
25 bullet under the equipment qualifications, the

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1 equipment has to receive adequate maintenance such that  
2 it's capable of fulfilling its function following  
3 design basis external event. So you've got one  
4 requirement that says you're only protected up to the  
5 design basis event, but the next requirement says we  
6 ought to work on a beyond design basis event. It seems  
7 somewhat contradictory.

8 MEMBER CORRADINI: So I have a question.  
9 All of this is deterministic. It seems to me that, if  
10 you're going to go down this path, you'd want a  
11 risk-informed approach that says, at the very least,  
12 it's got to be the design basis, and then we evaluate  
13 the risk and the consequence when I go beyond it by some  
14 amount. And all of this, to me, strikes me as we're  
15 parsing it in a way that makes it very difficult to  
16 unravel.

17 MEMBER STETKAR: See, that, in some sense,  
18 that might be part of how to demonstrate the additional  
19 margin. There might be other ways of how to  
20 demonstrate the additional margin. But if it's  
21 codified in a rule that I don't need to do that, then  
22 you never get to the question of how do I demonstrate  
23 that additional margin on a site-by-site basis.

24 MR. REED: It's interesting. You know, I  
25 personally do --

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1                   MEMBER CORRADINI: I have smarter people  
2                   in the committee that --

3                   MR. REED: I think it's an interesting  
4                   idea. I view the mitigation strategies order, and this  
5                   is what we're talking about in these two provisions that  
6                   you brought up, Dr. Stetkar and Dr. Shack, just as  
7                   basically providing an additional defense-in-depth  
8                   capability, recognizing the uncertainties associated  
9                   with beyond design basis external event. And those  
10                  words are right out of EA-12-049. And I think it  
11                  definitely does that.

12                  But when you say, okay, I'm going to  
13                  establish something even beyond that, whatever it might  
14                  be, you know, twice the seismic event or three times  
15                  or something 50 feet higher, I don't think that was ever  
16                  the intent, personally, of that order. It was an  
17                  additional capability that's there, an all-hazards  
18                  capability if you will, that's there. And I think it  
19                  does that, and that's what we're trying to do here.

20                  Now, if 2.1 comes along and establishes a  
21                  new envelope, then we're going to have to deal with that  
22                  new envelope. And that's another issue.

23                  MEMBER BLEY: You had a key phrase there,  
24                  and that was about the uncertainty.

25                  MR. REED: Yes, that comes right out of the

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1 order.

2 MEMBER BLEY: But that's going to be in the  
3 rule language? I mean, that's the key thing. You  
4 know, that takes care, at least for me, the things Ms.  
5 Stetkar has raised and it's close to what Mike said,  
6 at least from my interpretation of it.

7 MR. REED: Yes. It's in supporting  
8 section by section right now. You don't see it here,  
9 but I view the extended loss of AC power, loss of  
10 ultimate heat sink as a surrogate on-site condition  
11 that if you design a capability to address that  
12 situation and you give protection to your equipment  
13 from external events for your facility, you've  
14 developed an additional capability that's sufficient  
15 for uncertainties for beyond design basis external  
16 events. I don't think you should pretend that that's  
17 giving you anything more than that. Just my personal  
18 view.

19 MEMBER RAY: Back to the conversation we  
20 had earlier, it is a diverse, an additional capability.

21 MR. REED: It is.

22 MEMBER RAY: It isn't a substitute for a  
23 --

24 MR. REED: It's multiple sets of  
25 equipment. It's different. It's located different.

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1 I think there's --

2 MEMBER RAY: It isn't a, it isn't a way of  
3 addressing a hazard that exceeds the design basis  
4 because it is, as John was implying by his questions  
5 or asking by his questions, how we deal with events that  
6 are beyond the design basis. It is an additional means  
7 of dealing with beyond design basis events.

8 MR. REED: It doesn't get you margin by  
9 more protection, but it does give you something there  
10 by additional capability and flexibility. And I know  
11 that's a little different way of doing it, but I think  
12 it's very real.

13 MEMBER RAY: Well, in deterministic  
14 space, that's what defense in depth did, at least going  
15 back to my roots. Nobody claimed that you would never,  
16 ever have an event beyond the design basis, but you had  
17 defense in depth. Well, this is enhancing that  
18 tremendously, but it's not changing it to become  
19 something different.

20 MR. REED: Exactly.

21 MEMBER RAY: Okay.

22 MR. REED: That's my perception, and  
23 that's why I view these things. I'm not sure that's  
24 satisfying to the committee, but that's --

25 MEMBER STETKAR: That's satisfying to me

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1 because I see people using installed equipment in their  
2 plant design and fortified in some cases because they  
3 haven't done that yet to only the design basis as part  
4 of this mitigation strategy. So I'm not talking about  
5 dropping diesel generators into the site with  
6 helicopters. I'm talking about taking credit for  
7 installed equipment that actually exists in the plant.  
8 I'm saying I only need to qualify that equipment up to  
9 the design basis seismic acceleration to satisfy this  
10 requirement.

11 MR. REED: I think that's what this  
12 accomplishes. And I don't want to advertise it as  
13 being anything more than that. People think or are  
14 perceiving it's much more, and I don't believe it is.

15 MEMBER STETKAR: And, yet, this is all in  
16 the context of things that are beyond that.

17 MR. REED: It's saying words I think -- I  
18 think you've got a good point there and I think also  
19 Dr. Shack does, too. Maybe we ought to look at these  
20 words a little more carefully because they may be not  
21 the right words.

22 CHAIRMAN SCHULTZ: I think we do because  
23 it seems as if, and we talked about this in general terms  
24 and we'll talk about it more, as Bill indicated, but  
25 we're trying to move forward, put in place a new rule,

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1 and, yet, we seem to be handcuffed by the way we have  
2 done things before and the language that we can use  
3 because it's already in place. And, yet, we are doing  
4 all of this because the Fukushima event happened and  
5 caused us to reawaken in a number of different ways.  
6 The first recognition was that our regulatory process  
7 is fundamentally sound, the plants are fundamentally  
8 safe. However, there are things that we can do. And,  
9 yet, as we're moving ahead to do these things, we find  
10 the language is bound up in the way we have done things  
11 before, and that's why I question just in terms of  
12 timing or in terms of how we do things. And I know  
13 things have to be done rapidly or they won't have an  
14 effect on the current generation of plants. Rapidly  
15 is in the eye of the beholder, I guess. But it is  
16 important to keep in mind that we shouldn't be  
17 constrained by the previous regulatory framework, and  
18 we've talked about other frameworks that might be  
19 utilized in order to make good decisions in specific  
20 areas of improvement that make sense.

21 And I think what John is pointing out here,  
22 using the old language with new approaches, it doesn't  
23 seem to make sense, in terms of setting the requirements  
24 or, not requirements, the expectations. John said the  
25 rule sets expectations, and then it's up to the

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1       implementer to determine how that should be done.

2               MEMBER BROWN: I mean, I'm just sitting  
3       here listening. I mean, I tend to -- not sympathize,  
4       that's the wrong word, but understand the idea that the  
5       mitigating stuff we have on site, that you've got to  
6       establish some ground rules for which it's going to be  
7       designed. Your comment is if we design it for anything  
8       greater, the stuff we've got in there may have broken  
9       and, therefore, we have nothing to connect it to.

10              I would extend that a little bit because,  
11       while I kind of agree with that, to me, you're looking,  
12       if you go beyond that and you have stuff that breaks,  
13       you're going to be dependent upon stuff you bring in,  
14       not necessarily stuff you have on site, because you  
15       don't know what's going to break. You may have to  
16       bypass some electrical systems with cables out in the  
17       plant where you can. You're going to be doing a lot  
18       of stuff like that.

19              That type of stuff you can bypass. A  
20       generator with a set of bearings that break, you haul  
21       it out of the place wherever it is you want to hook it  
22       up. It takes a long time to replace bearings. It  
23       doesn't take a long time to do their stuff, and,  
24       therefore -- but if you look at the FLEX equipment, what  
25       do you bring in? Pumps. You're bringing in

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1 generators, all kinds of stuff for whatever the  
2 circumstances are. You're still dependent upon the  
3 pipes. All the little fittings, all those pipes,  
4 you're assuming in some way are going to still be in  
5 place so that you can --

6 MEMBER STETKAR: The switch gear that  
7 you're plugging into, for example, is there.

8 MEMBER BROWN: No. The pipe that runs the  
9 water into the plant you're assuming is going to be  
10 there. The electrical stuff you bring in, you may be  
11 able to bypass stuff in the electric plant that breaks.  
12 The pipes you're still ultimately dependent upon. So  
13 there's a lot of subjectivity in terms of how far you  
14 go.

15 But if you ask me what you want to beef up,  
16 it's not the stuff you're going to haul in or place.  
17 It's the stuff that's there, like the fundamental, what  
18 I call the blacksmith technology: the valves you have  
19 to open, the pipes that have to feed into the plant.  
20 Those are the pieces that you are most subject to lose  
21 in the bubble and not being able to accomplish your goal  
22 of preventing, as opposed to allowing it to get into  
23 a severe accident space.

24 So I don't know.

25 MEMBER STETKAR: Let me finish, okay?

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1       You have to establish a level somewhere. And if you  
2       put yourself -- I'm taking your side. You're in a  
3       never-ending death spiral if you say, okay, now, the  
4       mitigating stuff I put in the dome is going to be capable  
5       of twice the design basis accident. Well, now, how do  
6       you prevent that from keep ratcheting up and ratcheting  
7       up? If I'm going to do that, why am I not upgrading  
8       stuff in the plant so that I'll be able to use that if  
9       I -- I just think it's a never-ending death spiral and  
10      you're somewhat dependent on being able to bring in  
11      stuff from outside the plant, put it in, bypass  
12      electrical stuff, and hope your pipes are in place where  
13      you can run water in. Okay. I'll stop there. Now you  
14      can go argue, but I'm going to disagree with you.

15                   CHAIRMAN   SCHULTZ:       Tim, that is  
16      objective. Go ahead, Mike.

17                   MEMBER CORRADINI: Yes, this is how time  
18      marches on. But I think, Charlie, I might reinterpret  
19      what you said to be the -- we'll take piping since you  
20      call it blacksmith technology. There's margin there  
21      that could be determined by some sort of risk-related  
22      analysis that say, for a design basis set of rules and  
23      regulations, this is what it can stand, but we know it  
24      can stand more than that. By doing some analysis and  
25      understanding, I have margin. Now, once I capture that

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1 margin, I might choose to not upgrade it. I might just  
2 choose to take that reliability and that chance of being  
3 beyond that as part of the future way I handle beyond  
4 design basis.

5 So I'm not disagreeing with what you're  
6 saying. I'm just simply saying the way the rule is  
7 written or at least the way the current one is written,  
8 it doesn't accept that possibility. That's all.

9 MEMBER BROWN: Naval ships actually have  
10 to have a lot of capability that they take, they account  
11 for damage. And they have a bunch of junk laying  
12 around. That's not junk, by the way. That's a poor  
13 choice of words. And they trained on being able to go  
14 in and connect stuff right directly, bypassing the  
15 entire electric plant, bringing in power separately  
16 from another plant and plugging it into special  
17 connectors or, you know, whatever you have that are  
18 mounted right on the component, still depending on that  
19 component still be able to run. There's a fundamental  
20 limit as to how far you go.

21 My only point is I think we can get wound  
22 up in working too hard on the language because you have  
23 to pick something for the industry to design to.

24 MR. REED: This very issue is the one we've been  
25 wrestling with for a couple of years, and it's good to

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1 hear this interaction because you guys are --

2 MR. BOWMAN: The reaction I've got is that  
3 is what, as a practical reality, licensees are doing.  
4 We're seeing them depending on site-specifics. If  
5 they know that they may have a flood hazard of a certain  
6 level, they plan for where they can connect the  
7 generator to the electric power distribution system and  
8 where they're going to have to bifurcate the electrical  
9 power system so that it doesn't get inundated. And  
10 that's what you will see as an outcome if the Commission  
11 goes forward and accepts the recommendations in the  
12 COMSECY. We may wind up making that generically  
13 applicable as a requirement as part of this. But I'm  
14 very hesitant to say in regulatory language that you  
15 have to add margin because it's just as bad as using  
16 language like you have to provide reasonable  
17 protection. Reasonable means something different to  
18 me than it does to the rest of you guys, and I do believe  
19 you're all reasonable, but I recognize that we all have  
20 different opinions. The amount of margin that you can  
21 consider margin, somebody may think one millimeter over  
22 the reevaluated flood hazard is adequate margin. Some  
23 people may think you need 15 or 20 feet.

24 MEMBER STETKAR: Let me stop you for a  
25 moment here. How do you answer, and this is from an

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1 actual plant, obviously will not be named, the attitude  
2 that says our mitigating strategies take credit for  
3 this equipment that we have installed in the plant.  
4 Now, that equipment is not currently safety related,  
5 so we realize that we have to enhance this equipment  
6 and right now we're doing that because we need to meet  
7 a certain deadline and we need to absolutely comply with  
8 the law or at least our interpretation of the law.

9 So we are enhancing that equipment to be  
10 able to withstand our current, our current design basis  
11 earthquake acceleration, which I'll use a bizarre  
12 number of 0.05g just so I don't identify the plant. And  
13 that's what we're doing right now. We need to get that  
14 done in this refueling outage so that we satisfy our  
15 interpretation of the rule. We've already reevaluated  
16 our new hazard, and we know that that's 0.1g. But we  
17 don't have to update our equipment right now to 0.1g  
18 because we don't know what that's going to mean. We  
19 don't need to design additional margin in because we  
20 only need to do it to 0.05g right now because that's  
21 our interpretation. So no notion of additional  
22 margin, and that's installed equipment. That's not  
23 helicopter dropped stuff with cables.

24 And, oh, yes, well, if it's later  
25 determined that our design basis hazard is 0.1g in

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1 regulatory space, yes, we might need to further upgrade  
2 that equipment to 0.1g. No more because that's what  
3 the rule says. That's the attitude. That's the  
4 attitude that's promulgated by words like this, and  
5 that's what's really being done by the industry.

6 MR. BOWMAN: The way I would address that  
7 is that --

8 MEMBER STETKAR: I used seismic because  
9 seismic is a continuous spectrum, as opposed to floods.

10 MR. BOWMAN: I recognize that. That's an  
11 approach that can be taken by individuals that are  
12 working in stove pipes. We looked outside of just what  
13 is happening in mitigating strategies. We've also got  
14 the Recommendation 2.1, seismic activities, that  
15 include the evaluation of the phase one mitigating  
16 strategies equipment to the reevaluated seismic  
17 hazards, and that's supposed to be taking place in the  
18 not very distant future.

19 A licensee that operates in a stove pipe  
20 and acts the way you suggest they'd act is setting  
21 themselves up to have to redo it in order to comply with  
22 future requirements.

23 MEMBER STETKAR: Just remember, stove  
24 pipes apply to regulators, also.

25 MR. BOWMAN: Oh, I know. I recognize

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1       that.

2                   CHAIRMAN SCHULTZ:   Here's a concern.   So  
3       you put the language in here, and there's some level  
4       of dissatisfaction somewhere because we're only up to  
5       the design basis there.   So now I can see a tendency  
6       to say, well, we need to then handle this with the  
7       revised definitions or evaluations of external  
8       hazards.   And as we do that, we come up with a  
9       different, really a different conceptual approach to  
10      the reestablishment or the establishment, I'll call it  
11      a reestablishment because I think it could be a  
12      different approach, to establishing now what the new  
13      design basis is for external hazards.   And instead of  
14      doing what I did 30 years ago, I'm doing it differently  
15      because I'm using a different philosophy.   I can  
16      understand using different data.   Data changes.   But  
17      if you use a different philosophy in order to bump up  
18      or increase the design basis because you couldn't  
19      handle it here and establishing what one would do and  
20      your expectations for beyond design basis, then you  
21      really have created a poor situation again for the  
22      operating plant you were trying to work with so that  
23      they can continue their safe operation, which we've  
24      established exists.   You say, well, we don't want to  
25      do that because it would cost a lot to upgrade that

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1 equipment. By increasing the design basis and  
2 expecting the compliance to that revised design basis,  
3 that's going to be extremely expensive.

4 MR. REED: Well, it's interesting because  
5 we're mixing two different worlds here. There's a  
6 world where you want to establish a new event and  
7 there's an additional capability, and they're not the  
8 same. And that's what's going on here. So you want  
9 to talk about a bigger event, okay? That's basically,  
10 that's GDC-2 against, make it a bigger event. That's  
11 a defined event, a defined damage state, and I would  
12 have a defined way I would try to address that. Here  
13 we're talking about an additional all-hazards  
14 capability that's there for you. They're not the same,  
15 and every time we try to mix it it gets really hard and  
16 it's what's happening right here. If you have a new  
17 event and you have the risk information and it's there  
18 and it's warranted, then certainly we would take  
19 regulatory action in that circumstance, no question  
20 about it. But until you have that, I think we're in  
21 this additional capability thing, and maybe we can  
22 stretch it and maybe we can make it work and give that  
23 capability for some of these other things, even if we  
24 don't have all the risk information available, and get  
25 a lot of benefit there perhaps. But until there's

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1 really sound risk information to take a regulatory  
2 action, you're not going to see that. Well, we're  
3 going to take your SSE now, and it's two or three times  
4 bigger. Before that happens, there better be some  
5 sound risk information because I have to do that in  
6 backfit space in an order. I mean, so --

7 MEMBER RAY: You do have adequate  
8 protection as an alternative.

9 MR. REED: Yes.

10 MEMBER RAY: Let's not forget that.

11 MR. REED: Yes, and that's based upon  
12 risk.

13 MEMBER RAY: But it's an alternative to  
14 backfit space.

15 MR. REED: Well, adequate protection  
16 means you don't have --

17 MEMBER STETKAR: I think adequate  
18 protection, I believe the case history is whatever the  
19 Commission defines it to be.

20 MR. REED: Well, that's policy.

21 MEMBER STETKAR: So it's -- don't book it  
22 to numerical risk.

23 MR. REED: I'm going back to the section  
24 for 50.109, but, yes, you're right.

25 MEMBER RICCARDELLA: Just from a

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1 practical perspective, and I'm trying to improve my  
2 understanding, what we're trying to address is  
3 Fukushima and what happened at Fukushima, and we're  
4 talking about adding this extra equipment. Would the  
5 rulemaking, as it's written, permit the Fukushima plant  
6 to install this emergency equipment at the same  
7 elevation as their existing diesel generators? And if  
8 they did, would the extra equipment have done any good?

9 MEMBER STETKAR: The answer to that is, I  
10 believe, Pete -- that's a good question because their  
11 design basis was whatever that tsunami height was. So  
12 I believe this rule would have allowed them to put the  
13 additional equipment at, you know, three meters above  
14 sea level because that was their design basis.

15 MEMBER RICCARDELLA: And then, you know,  
16 again, I'm not enough of a systems guy, but if they had  
17 done that, would this additional equipment have done  
18 any good to mitigate that accident?

19 MR. REED: No, it wouldn't have been, but  
20 if you had the information available to them and we did  
21 a 2.1 assessment for tsunamis on Fukushima, what would  
22 we have found? A lot of historical information, an  
23 analysis saying over 50 feet. If I do that analysis,  
24 guess what I end up with? I have an order to  
25 immediately shut down all six units and fix them, no

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1 question about it.

2 So 2.1 on Fukushima says shut it down  
3 immediately. The risk was pegged based on information  
4 available. So that would have been a 2.1 situation,  
5 Fukushima.

6 MR. BOWMAN: We can ask the same question  
7 when we get to the recommendations of the COMSECY that  
8 the mitigating strategies be capable of dealing with  
9 a reevaluated hazard, which would, if these  
10 requirements were imposed on Fukushima, have had them  
11 show that they could withstand that particular hazard.

12 And the other thing that I suggest is that  
13 if we. As I mentioned before, I love quibbling over  
14 words. The phrase beyond design basis, you can take  
15 it to mean ever-increasing hazard levels, or you can  
16 take it to mean events that happened that are not  
17 covered by the design basis. I would prefer the events  
18 that happened that are not covered by the design basis  
19 because that doesn't put me in the position of needing  
20 to figure out when I say in regulatory language that  
21 it needs to be able to work in a beyond design basis  
22 event just how severe a hazard in the beyond design  
23 basis is it. But you're anticipating that in a  
24 response to 2.1. The design basis is going to change,  
25 and then these plants are going to have to go back and

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1 reevaluate this equipment to make sure that the new  
2 equipment at least meets the new design basis. Is that  
3 what you're saying?

4 MEMBER RICCARDELLA: No, what I'm saying  
5 is that, depending on the outcome, it may or may not  
6 change the design basis or the licensing basis.

7 MR. BOWMAN: Oh, sure, some plants will  
8 still --

9 MEMBER RICCARDELLA: But the  
10 recommendations to the COMSECY would be more that the  
11 mitigating strategies have to be able to operate with  
12 the systems of the plant in order to show that they can  
13 prevent fuel damage when that hazard or if that hazard  
14 occurs.

15 MR. BOWMAN: Clearly, this plant, the 2.1  
16 hazards aren't going to change. But, you know, as I  
17 understand it, it's about a third of the plants that  
18 the response spectra is going to double. So for that  
19 one-third of the plants, how are they going to have to  
20 address this new equipment that they just put in?

21 MR. RECKLEY: Eric, if I can, again, we're  
22 going to talk about this a little later, but I think  
23 one of the things that the Committee can think of is  
24 to start to think of the COMSECY and this rule language  
25 in tandem because what you'll see when you have to make

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1 or choose to write a letter on a COMSECY that, if the  
2 Commission were to not affirm what we're asking them  
3 to, which is that these mitigating strategies should  
4 address the reevaluated hazard, this is the outcome.  
5 And all the questions you're asking about the  
6 limitations, the mitigating strategies, the placement  
7 of equipment at the same level being vulnerable to the  
8 same event, that's the outcome if the Commission were  
9 to choose not to affirm what we're asking them.

10 So when you're looking at these two things,  
11 I know we put you in an awkward position basically of  
12 saying the rulemaking is on track one and, at the same  
13 time, we have another proposal that's actually changing  
14 what you're hearing right now that we're going to ask  
15 that you also weigh in on. But really what you're  
16 seeing here in the rule language is if the Commission  
17 were to not act on the COMSECY or to not affirm what  
18 we're asking them to do, this is the outcome. So just  
19 think of it that way as you're kind of developing what  
20 your opinions of both the rule and the COMSECY.

21 MEMBER STETKAR: You were worried about  
22 getting done early.

23 MR. REED:

24 CHAIRMAN SCHULTZ: Tim, do a few more  
25 slides. I want to call the break at 10:15, so go ahead.

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1 I'm going to stop you --

2 MR. SHEA: Just a quick comment on that  
3 last -- I'm also in the flood hazards --

4 CHAIRMAN SCHULTZ: Oh, identify yourself.

5 MR. SHEA: Jim Shea. I don't think Bill  
6 has that quite true. If you look at the flood hazard  
7 2.1, they actually have to reevaluate their flood in  
8 the flood hazard reevaluation. Interim actions have  
9 to address any new level, and, in fact, licensees then  
10 are addressing with their FLEX equipment that they  
11 still have. And then they would protect it against  
12 whatever that new flood hazard is. So really it  
13 doesn't, it's quite, you know, it's a little different  
14 to what Bill was saying.

15 MR. REED: Let me continue then. I think  
16 we're done with the equipment requirement section and  
17 gone to training. I hope I can get through this. I  
18 may need some help.

19 So what you see right now in terms of  
20 training is aligned, I think, with some of the thoughts  
21 you heard yesterday.

22 CHAIRMAN SCHULTZ: We did.

23 MR. REED: We're talking about using a SAT  
24 process. This would not be required to be  
25 INPO-accredited, but it would be site type process

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1 looking at basically all the new job tasks, a job task  
2 analysis of what's new, what's put in place, and then  
3 using a SAT process to make sure that folks get trained  
4 accordingly.

5 So we're trying to make it as flexible as  
6 possible, what makes sense there. Nonetheless, I  
7 think people would have to be taking a look at what their  
8 already trained on, what's new, do that gap analysis,  
9 develop that training, and do the training. So that's  
10 the kind of idea.

11 I'm personally not a training expert, as  
12 you, I'm sure, can tell. I think that this would  
13 largely be -- now, when I say new training, I mean beyond  
14 the order, beyond the EA-12-049, okay? There's a  
15 substantial amount of training in place for that.  
16 There's some training going in place for level  
17 instrumentation, as you heard yesterday. What I'm  
18 talking about is what's beyond that in terms of what's  
19 new in this rule. I think that would be focused, again,  
20 presuming SAMGs as requirements in the SAMG area in  
21 terms of making sure engineering staff understand the  
22 SAMGs, making sure the ultimate decision makers are  
23 trained on the SAMGs and understand that material and  
24 how to use it.

25 CHAIRMAN SCHULTZ: Don't focus only on the

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1 SAMGs. It's training on the integrated suite of  
2 guidance, directives one through three. So it isn't,  
3 it isn't EOPs in isolation. It isn't orders in  
4 isolation. It's not SAMGs or EDMGs in isolation.  
5 It's now training on the integrated suite of guidance.  
6 I mean, that's the way I've --

7 MR. REED: That's what the requirement  
8 would cover, in fact. I was looking at what would be  
9 beyond what's already happening right now. It's not  
10 a lot beyond what's happening right now.

11 MEMBER STETKAR: Tim, kind of building on  
12 John Stetkar's comment earlier about equipment and to  
13 the current design basis, I want to make a comment about  
14 the training words where the proposed wording or at  
15 least the present wording communicates at F3, "The  
16 licensee shall conduct subsequent drills, exercises,  
17 or both that collectively demonstrate a capability to  
18 use these strategies and guidelines in paragraphs  
19 (b) (1), (b) (3), in succeeding eight-year intervals.

20 Getting to the notion that John just  
21 mentioned, there really is a suite. It begins with the  
22 EOPs and flows into the beyond design basis ELAP, EDMGs,  
23 and the SAMGs. The wording doesn't say each of those,  
24 and I've spent enough time training and being involved  
25 in exercises for years that, unless you say each, then

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1 the training can be schmoozed and one element of that  
2 can be short sheeted.

3 So if you really want to know that the teams  
4 can do SAMGs, you've got to rehearse them on that. If  
5 you want to know that they can do the EDMGs, you've got  
6 to rehearse them on that. So somehow in that wording,  
7 each need to be exercised and the suite needs to be  
8 exercised, and you've identified an eight year period.  
9 That would probably be reasonable, but that period  
10 needs to make sure that all the ships and all the new  
11 people on the ships experience the training so everyone  
12 is qualified.

13 So I think adding the word "each" assures  
14 that no piece of the suite has been unexercised.

15 MR. REED: I'm going to need some support  
16 from folks in the room, but a lot of this is in  
17 NEI-13-06, which we're going to endorse. A lot of  
18 these details are not here. I would say and, in fact,  
19 I have a slide here in a bit on paragraph F that we're  
20 trying to be as flexible as possible here and allow  
21 people to do bits and pieces. For example, you heard  
22 yesterday about somebody may illustrate a part of this,  
23 the stripping portion separate, and another part, you  
24 know, hey, show me you can move debris. That can be  
25 done separately. It doesn't have to be all continuous

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1 in time or what have you. So we have that flexibility.  
2 But I understand what you're saying, too. Hey, you  
3 need to show me you can do FLEX, you need to show me  
4 you can EDMGs, you need to show me you can do SAMGs.

5 MEMBER STETKAR: Bingo. That's all I'm  
6 saying.

7 MR. REED: And we understand that, too.  
8 And I believe --

9 MEMBER SKILLMAN: It is captured in  
10 NEI-13-06, but bearing in mind that that would be just  
11 one acceptable method of meeting the requirement. It  
12 may be prudent to either say collectively demonstrate  
13 a capability to use each of or all of the --

14 MEMBER STETKAR: Not each of because we  
15 already have experience where we have plants that have  
16 fire response procedures and emergency operating  
17 procedures. And operating crews are trained and they  
18 become proficient on use of each of those, and they have  
19 drills on each of those. And we've had events in the  
20 plant, real events in real plants, where real operators  
21 who were trained on each one and drilled on each one  
22 in isolation have gotten hung up and have focused on  
23 the wrong things because they're never trained on the  
24 integration of all of those in a real event. That's  
25 why not each is not the appropriate --

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1                   MEMBER SKILLMAN: It needs to be that each  
2 is rehearsed, but the integrated suite is also  
3 rehearsed. That's the point I'm making. Words  
4 matter. NEI-12-06 is industry guidance, and you're  
5 writing regs. So if we want it to happen in the  
6 regulatory space, it's got to be written in a way that  
7 assures that we get what we're asking for.

8                   MR. REED: Yes. I think we want to have  
9 that assurance, and we want to touch upon all the  
10 different pieces of it. But at the same time, I'm going  
11 to be sensitive to the fact that this could be an  
12 extensive amount of drilling, too, so we've got to be  
13 careful on that, too. And we could do that and then  
14 see what folks feel about that, how much of an impact  
15 that is.

16                  CHAIRMAN SCHULTZ: Tim, I'm going to ask  
17 you to move to the next slide.

18                  MR. REED: Sure. That will be George  
19 Tartal's portion.

20                  CHAIRMAN SCHULTZ: Okay. If that's the  
21 case, we will stop here, take a break, and be back at  
22 10:25, please.

23                  (Whereupon, the above-referred to matter  
24 went off the record at 10:12 a.m. and resumed at 10:27  
25 a.m.)

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1 CHAIRMAN SCHULTZ: I'd like to call the meeting back to order from recess and  
2 move forward on the slides. We've had a request from the bridge line, and you might understand this,  
3 that they're having difficulty knowing which slide we're on, so as we move through them we'll just call  
4 out the number when you're making the presentation. So, we are on Slide 8, and I'll turn it back over to  
5 you, George, for your presentation on this slide.

6 MR. TARTAL: Okay. Good morning, everyone. I'm George Tartal from the Office of  
7 New Reactors, and I'm going to be addressing Slide 8 here on the Proposed Rule Language for  
8 Paragraph D, the New Reactors Requirements. I'm going to start in the middle of the slide here on the  
9 intent. All right?

10 So, the intent of the additional rule language under Paragraph D is really in  
11 implementing the Commission's Advanced Reactor Policy Statement. And I've added a couple of clips  
12 from that policy statement on the slide here so that in the Advanced Reactor Policy Statement it says  
13 that, "The Commission expects at least the same degree of protection of the environment, public health  
14 and safety, and the common defense and security that's required for current generation light water  
15 reactors." And also, "Enhanced margins of safety and/or the use of simplified inherent passive or other  
16 innovative means to accomplish their safety and security features."

17 Additionally it says that, "New reactors should consider the following attributes,"  
18 and there's a couple of bullets that I pulled out from the policy statement, such as longer time  
19 constants, sufficient instrumentation to allow for more diagnosis and management before reaching  
20 safety systems challenge and/or exposure of other equipment to adverse conditions." And also,  
21 "Simplified safety systems that where possible reduce required operator actions, equipment subjected  
22 to severe environmental conditions, and simplified systems should facilitate operator comprehension,  
23 reliable system function, and more straightforward engineering analysis."

24 So, with all of that said in the Advanced Reactor Policy Statement, what we're

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1 looking for for new reactors is for new reactors to be better able to address the effects of the extended  
2 loss of AC power that we've been discussing here this morning. And in doing so, we're looking for new  
3 reactors to have a greater reliance on installed equipment versus the FLEX equipment like we've been  
4 talking a lot about this morning. Also, less operator actions, if possible. And also, more time for  
5 diagnosis, planning, and preparation like you heard in the Advanced Reactor Policy Statement.

6 Now, I'll also caveat that this rule language would not obviate the need for FLEX  
7 equipment. Right? What we're talking about mostly here is the installed equipment that's being  
8 considered for Phase 1 that I believe you heard about yesterday.

9 So, with that, with that intent B-

10 MEMBER STETKAR: George, can I ask you B-

11 MR. TARTAL: Yes, go ahead.

12 MEMBER STETKAR: B- just B- and shut me down if you're going to get to this,  
13 but if I look at the longer time constants part of that policy statement, and I think about what we were  
14 hearing yesterday B- I understand AP 1000 and ESBWR. What I want to look at now are other so called  
15 active new reactor designs. We've got a couple in the design certification pipeline right now. And if I  
16 look at those designs, for example, they have what I call traditional battery lives, the safety-related  
17 batteries have design lives of like two or four hours. If I had an extended loss of AC power at one of  
18 those plants, I would need to invoke extensive load shedding like the current operating fleet to extend  
19 the lives of those batteries.

20 As part of this for new reactors, are you looking at those types of issues, or are you  
21 only looking at dropping a diesel generator in more quickly?

22 MR. TARTAL: I'm going to turn this one over to John McKirgan. He's leading the B-

23 MEMBER STETKAR: That's part of that time constant.

24 MR. TARTAL: It is. And now you're down into sort of the guidance level of the rule.

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1 MEMBER STETKAR: Okay.

2 MR. TARTAL: So, I'm going to turn it over to John.

3 MR. McKIRGAN: Thank you, George. John McKirgan again for the New Reactor  
4 Staff. Those are exactly the considerations that we're struggling with right now. And that's exactly why  
5 we're putting this proposed draft language before the Commission, because we do want to  
6 B- historically, we had been following the operating fleet and using the same guidance and following  
7 along that. And as we reflected on that and thought about some of the opportunities available for the  
8 new reactors, and as you've keenly focused on, the active designs are an area of focus for us in this  
9 area. We thought this was enough of a deviation from what we had been doing that we needed to go to  
10 the Commission and get explicit approval from the Commission to take this path. But those are the  
11 kinds of considerations.

12 In New Reactor space could you simplify some of the actions that are necessary?  
13 Could you extend the diagnostic time? So, the short answer to your question is yes. A lot of that, as  
14 you'll appreciate, will come in guidance, so we are very much B- the guidance is not, unfortunately,  
15 ready yet, but those are the considerations that we want to have, but we felt we needed Commission  
16 acknowledgment to pursue that.

17 MEMBER STETKAR: Thanks, that helps a lot. Thank you.

18 MR. TARTAL: So, one other piece before I get into the specifics of the rule text is  
19 going back to, I think something Dr. Schultz said about an hour ago, talking about sort of being  
20 handcuffed by the way that we are implementing the current orders on the operating fleet. So this  
21 would be going outside of those bounds, if you will. This will be going something in addition to what's  
22 happening with the orders. And we wouldn't be, necessarily, bound by those restrictions. The operating  
23 fleet has already implemented this, so there's some limitations to what we can do in the rule. So, this is  
24 outside of those bounds.

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1 And in saying that, so let's go to the first sub-bullet under the Assessment  
2 Requirements, is we are applying this rule language only to applicants that are listed in Paragraph  
3 (a)(4) of the applicability language. So, the intent here is that we're forward fitting this part of the rule  
4 language. This Paragraph D would be a forward fit. We're not intending to backfit any current licensees,  
5 we're not intending to backfit any of the current design certification holders. This is a forward fit. This is  
6 going forward for new reactors.

7 And the other part of this is B-

8 MEMBER CORRADINI: If I might ask, is that because of a technical reason, or is that  
9 just B-

10 MR. TARTAL: Backfit justification.

11 MEMBER CORRADINI: Oh, I thought you were going to say something different.  
12 AP1000 have a character that are different, so I thought that's what you were going to say.

13 MR. TARTAL: No, I wasn't going to go specifically to ESBWR, ABWR, or any of those.  
14 This is more of a generic issue B-

15 MEMBER CORRADINI: Okay.

16 MR. TARTAL: B- that in going forward we can't justify the B- at least the way it's  
17 currently drafted we can't justify the backfit for any of the current design certifications to include this  
18 assessment piece. So, this would be for any applicants going forward.

19 MR. McKIRGAN: If I could, George.

20 MR. TARTAL: Go ahead, John.

21 MR. McKIRGAN: Going back to B- I think part of the intent here was to look at  
22 design attributes and design features, and so to the extent that we were going to impact design looking  
23 at designs going forward, trying to assess the already certified designs had limited benefit. AP1000  
24 ESBWR, I think you appreciate the B-

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1 MEMBER CORRADINI: So, you would treat them C-the ones going backward that  
2 have certifications on a case-by-case basis then?

3 MR. McKIRGAN: Let me say it this way. I mean, it is B- when you look at the overall  
4 rule, those licensees that are referencing already certified designs have the other provisions of the rule  
5 applied to B-

6 MEMBER CORRADINI: Okay. Right. Okay, okay. All right, fine.

7 MR. TARTAL: So, the other piece of this that I wanted to mention is, we're really  
8 trying to get at implementing this as early in the design process as possible. I talked a few minutes ago  
9 about the use of installed equipment. The best time to plan for that is during the design process, so  
10 that's why we're going at it at the applicant stage.

11 So, the next sub-bullet here talks about the specifics of the rule language of requiring  
12 a design-specific assessment of the effects of an extended loss of all AC power concurrent with the loss  
13 of normal access to the ultimate heat sync. And then based on the results of that assessment, we're  
14 looking for the applicant to incorporate into the design features that B- and, again, I'm going back  
15 through these same concepts, minimizing reliance on human actions, enhancing coping durations and  
16 demonstrating the ability to maintain those functions. That's what we're really trying to get, and as  
17 well, possibly providing diverse power supplies to support extended coping and recovery.

18 So, with that I'll turn it over to the Committee. The Committee have some ideas,  
19 questions about the rule language?

20 CHAIRMAN SCHULTZ: Any comments or questions on this slide? We'll move  
21 forward. Thank you.

22 MR. REED: Okay, back to me. George doesn't throw his arms around enough. I'm  
23 sure you're getting bored, so get back to me and watch me flail about.

24 MR. TARTAL: Keep them awake.

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1 MR. REED: Exactly.

2 MR. TARTAL: Thank you.

3 MR. REED: We've talked about two things on this slide, both probably will be of a lot  
4 of interest to folks. First is the drills and exercises requirements of Paragraph F. We've talked about this  
5 a little bit already. In fact, in that regard, I was talking to some gentlemen out in the audience at the  
6 break and they indicated that the implementation guidance is exactly what you were suggesting, Mr.  
7 Skillman, that the intent is to show all the capabilities. So, I just wanted to get back to that real quick  
8 because you brought that up earlier, so I want to make sure I didn't forget that.

9 It's structured to first have initial drill that basically would be something that would  
10 show the use and transitions. And if I go wrong on anything, I've got experts in the room to correct me,  
11 but it would be something would be unqueued, so essentially as a licensee you'd have to be able to  
12 basically have the capability to do anything in this suite of guidelines. So, that would basically show us  
13 in a drill form that you can do this stuff. You can use and transition between the different guideline sets  
14 and EOPs. And whether that's in the FLEX, or SAMGs, EDMGs, what have you. And then following that  
15 we have this continuing 8-year calendar period recurrent cycle that you see there. So, that's how it's  
16 structured. It gets very complex, unfortunately, because of all the different circumstances that we could  
17 find ourselves in in licensing space in Part 50, and Part 52. So, I apologize for the complexity, but  
18 depending on who you are and where you are in the licensing process will basically define whether  
19 you have to do a drill prior to getting your license, and then what the periodicity is following that. So,  
20 that's really in a very high level, I'm not getting down into all the machinations of that complex cycle,  
21 what that's really getting to.

22 I'll hold on that, see if that's B- if the Committee has any questions on that from the drill requirements.

23 So, then going on to change control. This is another issue I'm sure that's B- I know  
24 some folks have some interest in. We're dealing with beyond design basis event capabilities here. 50.59

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1 does not work in beyond design basis world. Okay? So, we know B- we knew from the get-go that we  
2 needed something to evaluate changes in a beyond design basis regulatory framework, so the idea of  
3 Paragraph G is to put in place an additional change control provision that addresses the beyond design  
4 basis aspects of a change.

5 Basically, the current structure has B- it's different in terms of every other change  
6 control that I'm familiar with. In other words, it doesn't have a threshold criteria against which a  
7 licensee would say hey, I might cross this boundary and now I've got to come to the NRC. Okay? What  
8 it simply says is you shall comply with the requirements of this section. Okay?

9 Now, obviously, that goes without saying. If you're a licensee you have to comply  
10 with these requirements, and so somebody might say what's that? You know, if you were going to  
11 change your facility you would have to comply with them, but what it's making people do is evaluate  
12 this thing, document it, maintain that documentation for NRC inspection so that we can come and look  
13 at it and see whether, in fact, we agree with it.

14 What we did, frankly, is punt on this threshold because it's a very challenging thing  
15 to do to try to understand where would I set a threshold to judge changes? Okay. I might be able to do  
16 something like that for mitigation strategies, just thinking off the top of my head. Maybe I have a set of  
17 criteria says hey, have you done anything to degrade your ability to maintain or restore core cooling, or  
18 spent fuel pool cooling, or containment, or reasonable protection? I could go through the B- I could do  
19 it almost set that kind of stuff. I haven't tried to do that here because that would be one set of criteria if  
20 you could ever get there on mitigation strategies. They would be different for SAMGs. Okay? They  
21 would be different for EDMGs, so it's a pretty complex situation.

22 I think it's an area where I'm looking forward to trying to get some feedback from  
23 external stakeholders and say hey, this is what we've got. Right now it doesn't have a lot of flexibility.  
24 This section, my section supporting this would say hey, if you're making a change and it remains within

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1 basically endorsed guidance, you're good to go. And as you folks heard yesterday, that that endorsed  
2 guidance is, in fact, building in all the new information alternatives, so there is more flexibility being  
3 built into the endorsed guidance for mitigation strategies, so it would allow that. But right now that's  
4 the envelope you're in, the box you're in in change control. And if you get outside of that, okay, you  
5 really have really two options here. And it would be up to licensees' own decision.

6 One, if you don't think you meet these requirements, clearly, you have to send an  
7 exemption under 50.12. Okay? So, that's just, you know, Regulations 101. That goes without saying.  
8 So, you don't meet a regulation, you think you're okay. You come in under exemption space. I don't  
9 think B- it's not optimal but that's, nonetheless, the situation we'd be in.

10 The other one is if you're a licensee and you say hey, I'm not B- I don't think I really  
11 am in compliance with endorsed guidance, but I think this is a better way to do it. And I think I meet the  
12 requirements. Then I think that licensee right now, there's no B- there's really nothing there for that  
13 licensee. Under their own volition they could send in something for us to review and approve, and I  
14 think we'd have to probably follow something like 50.90 license amendment or process.

15 Now, that's just the way I see it right now real time. We're wrestling with this issue,  
16 and I know industry is wrestling with it, too. And I'm very interested in hearing that feedback from  
17 industry, and their thoughts on this, too. So, nonetheless, that's where the change control provision is  
18 right now.

19 We had some feedback from industry earlier on at one of the public meetings about  
20 a negative consent type approach. We thought about that. You don't see a negative consent approach  
21 right now in there, so I'm just saying that we've considered that feedback, but right now this is where  
22 we're at. So, I will be quiet now and see if B- what the thoughts are on the room.

23 CHAIRMAN SCHULTZ: The example or the sequence that you didn't mention is I'm a  
24 licensee and I'm meeting the requirements, but I feel I can still meet the requirements and change my

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1 equipment, change my process in such a way that reduces effectiveness but still meets the  
2 requirements. And this would say that is acceptable. I just have to meet the requirements, and I can  
3 B- it's not like an emergency planning situation where any degradation to the program needs to be  
4 reviewed and evaluated; rather, I could change the program, not get review and evaluation, as long as I  
5 meet the requirements.

6 MR. REED: That's correct. That's exactly the way it's structured today, and the  
7 licensee that would do would be taking that at their own regulatory risk, so they would have to  
8 maintain that documentation. And if we came later and said you reduced effectiveness, of course, we  
9 would be looking at that. So, that's the circumstance as it exists today. That's correct. The current draft  
10 rule language is, that's correct, I should say.

11 CHAIRMAN SCHULTZ: Any other questions on this area? Let's move forward.

12 MR. REED: Okay. So, we have all these new requirements basically broken into two  
13 chunks, if you will. We have a kind of a standalone portion, if you will. It doesn't work quite this way,  
14 the 50.XXX portion that you saw. Then we have a separate set of requirements that we've located over  
15 into Appendix E. Okay? So, these are, obviously, requirements that relate to EP, and that's why we  
16 relocated them there. We thought that was a good place. We had some stakeholder feedback to that  
17 regard.

18 So, the way we've done that is kind of two-fold. We've built directly into the current  
19 Appendix E, or we're suggesting building in directly into requirements what are called the multi-source  
20 term dose assessment requirements. Okay? So, the idea there is a licensee updating that software  
21 capability, developing the training, completing that training. Once that's in place, that will be invisible  
22 to basic of the EP organization, so that kind of makes sense to build it into the current EP capability, so  
23 that's why we did it that way.

24 Then in addition to that, we've built in a new Section 7 that's separate from the

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1 current six sections of Appendix E, and which, by the way, it's outside the change control of Appendix  
2 E. And that's 50.54(q) would not apply. Instead, the change control I just talked to, 50.54(g), I mean,  
3 50.XXX(g) would apply, so that's this Section 7. And that's getting to staffing and communications  
4 requirements, the requirements that if you recall were part of the 50.54(f) letter that I mentioned at the  
5 very beginning, that's where you see those in Section 7. So, that's how we did that.

6 And then we have a final, I'll call it a clean-up provision. Right now if you go and you  
7 look in the emergency response data system portion of Appendix E you'll see a reference to modem  
8 technology, and we're going to remove that. Obviously, we're a little behind the times around here in  
9 technology but we're trying to B- I shouldn't joke about that, but we're removing the modem reference  
10 and making that more neutral in terms of technology. So, that's an easy thing to do. That's already been  
11 implemented, so we can clean that up. So, that's the Appendix E portion of this proposed B- draft  
12 proposed rule language as it stands today.

13 Okay, then we have B- and I don't have a lot of detail on this. We have application  
14 requirements, because until we establish submittal information type of requirements for new  
15 applicants, whether that's under a Part 50 or a Part 52-type process. And, you know, essentially if you  
16 go and you look at that, you'll see basically what we're requiring in terms of information on this  
17 integrated capability, as well as the B- as George Tartal mentioned earlier, this design assessment  
18 capability. Depending on what part of that process you're in, if you're early enough in the applicant  
19 process you'll have basically all of it, if you're later on the process, and operating license process we'll  
20 be asking about this integrated capability. And if you go through that you'll see exactly the language.  
21 And we tried to basically make it whether you're in Part 52 or Part 50, it's basically the same kind of  
22 situation where that's a parallel part of the process, or a similar part of the process, recognizing they're  
23 different. So, there's the application submittal requirements that we have to build into our regulations,  
24 also.

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1 Okay. Now, the next part of this regulation is a part that you did not get. It's not  
2 complete, and that's the implementation section. So, I B- basically, if you're looking at draft language,  
3 you'll just see basically a bullet, a list of items that I know that if we, in fact, are going to put into place,  
4 this is all the new kind of thing B- all the new stuff the licensee would have to put in place to be in  
5 compliance with this new set of requirements. So, this is important from a CER, cumulative effects of  
6 regulation process standpoint. We need to understand what that is, how long does it take, get as much  
7 information on that as we can, and give people an opportunity, a proper opportunity in terms of  
8 implementation schedules to get that done. So, we're working that issue.

9 Right now I see that in several different areas. Licensees would have to develop, or at  
10 least supplement the current configuration, change control process to add this new change control  
11 provision in there. They would have new training requirements. As we mentioned before, there would  
12 be this new basically a gap analysis to understand what new jobs and tasks there are, develop that  
13 training, do that training. There may be more command and control, there may be more stuff. As I  
14 mentioned, I don't suspect that, but I don't know that for sure, but there may be some impact there.

15 The SAMGs I think would be where most of this, in fact, would occur, basically  
16 putting in place plant-specific SAMGs that we would expect to reflect the Owners Group, the most  
17 recent Owners Group SAMGs, updating that to be, you know, consistent with the current plant  
18 configuration, and then maintaining them within the configuration of the plant. Again, presuming that  
19 SAMGs become requirements. The efforts to integrate these guidelines I think are largely done, but I  
20 think it would be more thorough and systematic how we work through that guideline integration. That  
21 would have to be another area of where licensees would have to work through the process to  
22 implement this.

23 Equipment requirements, of course, those could be substantial requirements. I think  
24 largely would be in place right now because of the two orders but, nonetheless, it's a potential there

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1 that we could have some new requirements. And, actually, another potential, if some the Commission's  
2 actions on Mr. Reckley's paper here that could change the rulemaking and be substantial impact there.

3 Multi-source dose assessment capabilities, again, licensees changing out that  
4 software, making it multi-source term capable, develop the training, training the appropriate staff and  
5 deploying that. So, these are right now what I see as additional beyond everything that they will have  
6 done based on the post-Fukushima orders. These are new pieces that I think we'd have to be sensitive  
7 to, and understand what it's going to take to implement this. But those provisions are not written at this  
8 time, so working on them as we speak.

9 CHAIRMAN SCHULTZ: The phrase, "will use the cumulative effects of regulation  
10 process," that's for B- during the rulemaking, or the rulemaking will establish that this will happen in  
11 the future?

12 MR. REED: That's a process we use as part of rulemaking. And the aspect I'm  
13 talking about here is, in particular, when it comes to implementation, is during the final rulemaking  
14 process, what we do is we have a public meeting where we meet with external stakeholders. We  
15 basically at that point have a fairly complete set of final requirements, and what we do is we try to  
16 understand as best we can at that point in time what the situation is from licensees, and what they can  
17 accommodate in terms of implementation, and then make adjustments, as appropriate. So, that's a part  
18 of the current CER process that we have right now.

19 CHAIRMAN SCHULTZ: Late in the process.

20 MR. REED: Yes, that's in the B- that particular piece of the CER process, much bigger  
21 than that, but that particular piece is at the final rule. And it supports understanding, implementation  
22 impacts, and adjusting implementation periods.

23 CHAIRMAN SCHULTZ: Want to clarify when it occurs.

24 MR. REED: Yes.

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1 CHAIRMAN SCHULTZ: Late in the process, is appropriate. Thank you. Any other  
2 questions on this slide? Moving to Slide 11.

3 MR. REED: So, you guys have heard me say the word "backfit" a few times. I'm a big  
4 fan of backfit if you haven't figured that out. But one of the things that when we consolidated this  
5 rulemaking together into one basically consolidated rule, or what we're calling the mitigation beyond  
6 design basis events rulemaking now is we recognize very clearly that there are some fundamental  
7 different bases for different parts of this rule. Okay?

8 The requirements stemming from the previously implemented orders are not  
9 backfits. They have already been imposed, so making those generically applicable, okay, would  
10 basically be not a backfit. Presuming you're not stepping way beyond that and, in fact, extending the  
11 requirements. So, those are one set of requirements and, in fact, that's right now where we stand in  
12 terms of if you look at mitigation strategies order and the way that's been implementing, the intent  
13 right now is to basically make that, as you've heard yesterday, part of this framework and in that  
14 footprint. So, no intent right now to go beyond that regulatory footprint in terms of mitigation  
15 strategies, and neither in terms of the spent fuel pool level. So, those are not "new backfits." Okay?

16 Basically, this is B- that's about making those provisions now putting them into the  
17 Code of Federal Regulations, that's basically just good rulemaking practice, making that available in the  
18 Code of Federal Regulations.

19 Now, everything else now beyond that does not have a supporting backfit basis.  
20 Okay? So, that really is all the portions on the onsite emergency response capabilities rulemaking that  
21 we pulled in. Now, it can get rather complicated, and I think it's really B- kind of a better way to look at  
22 it is to bin this into kind of a couple of different bins.

23 First of all, it's all the order requirements, not backfits. And then, basically, everything  
24 else that really is substantive relates to SAMG requirements from the onsite emergency response

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1 capabilities portion of this. Whether that's the SAMG guideline set itself, whether it's training for the  
2 guidelines, whether it's drills to send into SAMGs, it relates to SAMG requirements. So, the way we're  
3 structuring the supporting analysis is to be able to basically bifurcate, if necessary. If the Commission  
4 directs us and says no, SAMGs will remain voluntary, then I can basically be able to go to what I call  
5 Plan B, make the change, switch out SAMGs, and adjust the package accordingly. So, that's the way  
6 we've kind of structured that. So, it works pretty much like that.

7 Then we have a few additional requirements that don't really work into that. We  
8 have the multi-source term dose assessment, which is a voluntary B- voluntarily being implemented  
9 by industry, as I understand, to be complete by the end of this year, I believe. Okay? So, that will be  
10 implemented. It's a backfit but it will be no impact in terms of its ultimate impact. So, backfit without  
11 impact I believe is how I am calling it there.

12 And then we have B- Mr. Tartal was talking to today what are called forward fits,  
13 and that's chosen very nice to say not backfits, so it's not an imposition on a current licensee. It would  
14 be going forward, and we can do that without jumping through the hurdle of backfit. So, that's another  
15 area.

16 And then what I call a kind of clean-up provision to remove the technology reference  
17 currently in the ERDS portion of Appendix E. So, looking through that, that's how the requirements bin  
18 B- and I just want to start with that so you understand how they're sorting out, and then we can go to  
19 what are obviously the most substantive portion of the backfit, and that's SAMGs. That's the next, and I  
20 think probably the most interesting slide in the package, at least in my view, so that's the next.

21 SAMGs, it's a very B- I think B- and it's a very interesting situation we find. I think  
22 there are very strong arguments for SAMGs, and very strong arguments against SAMGs. And what we  
23 B- our intent is to provide the entire picture to our Commission because this is why B- this is what the  
24 Commission is there for, to make these kinds of decisions. So, our job is really to try to completely

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1 inform them, give them the complete picture, and let them make the best decision possible.

2 So, one of the qualitative and I think personally strong arguments for SAMG  
3 requirements. Now remember, folks, there are SAMGs. They do exist right now. They've been in  
4 existence and implemented at facilities since December 1998, and they were, obviously, voluntary  
5 initiatives. Okay? What we'd be doing is making that a requirement.

6 I think it's B- the strong arguments for them are this. Once you get to core damage,  
7 and you have fission products, basically, now becoming in existence, obviously, and getting released,  
8 now is when containment really matters. This is why the containment exists, so when you're trying to  
9 make your best decisions concerning containment, and maintaining that capability, you would be  
10 using B- making those decisions informed by this guideline set, the SAMGs. So, in my view, they're  
11 kind of like the direct guideline set that informs one of the most important defense-in-depth features in  
12 nuclear power plants, the containment. That's a pretty strong argument by itself.

13 At the same time, the same guidelines that would be used, of course, to inform the  
14 emergency response organization in terms of the fission product barrier integrity, and whether you've  
15 lost that, or you expect to see them, and that could be pretty important in terms of forming onsite and  
16 offsite protective actions. So, EP, Emergency Preparedness, is another one of our defense-in-depth  
17 foundational portions of our regulatory framework, and I see SAMGs as basically informing that. So,  
18 my view is qualitatively I think SAMGs inform two big pieces of our defense-in-depth framework. And I  
19 think they have extraordinary value. They have -- an amazing amount of talent, and expertise, and  
20 effort went into these things from the beginning in 1992 when EPRI did the first technical basis  
21 document, recently updated in 2012, a lot of great work by the Owners Group here recently to update  
22 these things. These things have a lot of good information, pre-planned strategies that would be very  
23 useful, and a lot of great supporting information in terms of what you might expect in an extreme event  
24 such as this.

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1 And, basically, I think the value comes in, is that this is a tool that allows you to make  
2 the most optimal decisions and use of all your resources available to you. That is the value. And I think  
3 it's a very good value and, like I said, it's an enormous amount of effort over the years with  
4 extraordinary people involved, and it certainly is B- in that sense you could say boy, this makes all the  
5 sense in the world. Why aren't these things requirements right now?

6 Now, if I go to look at this thing from a quantitative standpoint and I tried to use all  
7 of the available risk information that are available to us, and I've been I think rightfully accused of not  
8 doing enough risk for this, and I don't forget that. I think you're right, we haven't done enough  
9 risk-informed thinking in some of this.

10 Well, I went and looked what's available, and what's available, as this Committee is  
11 probably very familiar with, is the work that Marty Stutzke has done for the containment protection  
12 and release reduction effort there, and the regulatory basis effort there. He was looking at, of course,  
13 the strategies that Mark I containments would take after core damage, and looking at where I can get  
14 benefits from those strategies. And if you think about that, those are SAMGs. You're in SAMG space for  
15 a Mark I.

16 In a sense, what you're really looking at there is what would SAMGs do for me in  
17 terms of safety? And I think what Marty's work is showing is that while they don't do much in terms of  
18 quantitatively and safety, and that's B- by the way, that's a good answer. That shouldn't surprise  
19 anybody, and if it came out any other way I'd be actually concerned because after 50 plus years of  
20 regulation, okay, we've reduced that core damage frequency pretty low, and that's what we do. Okay?  
21 And we've pulled in 1980 EP regulations that are pretty effective, and move people out of harm's way,  
22 so by both those front end and back end, and I'm in a severe accident situation and I'm doing what I can  
23 with SAMGs, basically, stop B- halt the progression of it, or minimize the releases, I shouldn't see a lot  
24 of benefit. If I do, then I actually would say whoa, I should not let this thing B- this sequence shouldn't

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1 even get to core damage. You see what I'm saying? And that's the way we've always done it. We see  
2 something that's an internal-external event driving something creating risk, we've got to go to SAMGs  
3 and use SAMGs to reduce that. Of course not, we don't let it go to core damage. So, I think Marty's work  
4 bears out that, basically, the product of all those years, and shows that unfortunately from a  
5 quantitative standpoint they don't have a lot of benefit. Okay?

6 Again, from a health and safety perspective, I think it's a great thing for folks to know  
7 that. Now, so I have that quantitative information there and says no, I don't think we could possibly  
8 meet the backfit. No, you're frankly not even in the ballpark to meet the backfit kind of risk kind of  
9 measures we typically look at. And you have a very strong qualitative argument says you really should  
10 have these. Okay?

11 I think our thought is B- I think this is the kind of issue the Commission should  
12 weigh in on. We would propose B- frankly, I think we ought to get all the folks, external stakeholders  
13 to weigh in, too. And that's our proposal. Let's put this to the Commission, and suggest to the  
14 Commission hey, let's get everybody's feedback, see what we think, and see what we do with the final  
15 rule. So, that's kind of our proposal right now. So, right now you see a draft set of requirements with  
16 SAMGs in place. So, I just wanted to talk through some of that work and see what the Committee's  
17 reaction is to it.

18 MEMBER BLEY: The one thing you didn't mention here, or at least not directly, is the  
19 thing you mentioned earlier, which was defense-in-depth as a measure to take care of our uncertainty,  
20 and among other things getting outside of the design basis to a point we haven't looked. So, one thing  
21 these offer, as does all of the FLEX stuff, is that should we have an event occur that we don't expect to  
22 occur either because we just got unlucky, or because somehow our understanding of the uncertainty of  
23 getting outside the design basis in one way or another wasn't complete. And then both the FLEX  
24 equipment and the SAMGs give you a way out of that thing you never expected to happen. And you

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1 didn't quite put it that way anywhere, and I wonder if you B- you must have thought along those lines  
2 somewhere along the way.

3 MR. REED: Yes, I think B- we did. I think the B- there's a great B- a substantial  
4 additional capability to mitigate, basically as you heard to alternate ways to maintain recirc cooling,  
5 especially for cooling containment. All those capabilities are now in these facilities have become very  
6 real. Guess what, they're also available in a post-core damage environment. So, the SAMGs now with  
7 that additional capability, that's another big plus here to build that into the SAMGs, at least give those  
8 tools to the folks. And on a bad day, at least they could have that available to them and see whether, in  
9 fact, they can make the best use of it. So, that's another good thing about SAMGs, and make them  
10 requirements, make sure those are built into.

11 Now, I forgot to mention, and this is another B- I did mention this earlier, and it  
12 bears mentioning right here. There's another con to this, it's a pretty significant one depending on how  
13 this would be implemented, and to what level of rigor.

14 If you put too much attention on SAMGs B- and, by the way, this was a focus in the  
15 original SAMG effort in the '80s and '90s, you are diverting attention away from much more important  
16 stuff. So, it was explicitly in the original SAMG B-

17 MEMBER BLEY: Put too much, you said too much.

18 MR. REED: Yes.

19 MEMBER BLEY: And I think another thing you didn't mention was right after  
20 Fukushima you had a couple of orders to go out and look at B-

21 MR. REED: Yes.

22 MEMBER BLEY: B- B5B stuff, and at the SAMGs.

23 MR. REED: Right.

24 MEMBER BLEY: And you found at least some deficiencies in almost all of them, and

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1 some pretty severe, not being kept up to date and that sort of thing.

2 The thing that just I'm pretty convinced of is that you see a lot of credit to the  
3 industry and to you guys for going ahead both with what we talked about yesterday with the FLEX, and  
4 with the SAMGs, and making sure they're intact. And that is that some day sometime in the future,  
5 some poor guy in a power plant is going to be really grateful to the folks who put all this stuff in place  
6 because something happened beyond what the designers were thinking about, or what the safety  
7 people had thought about, and this going to get them out of the way.

8 I still go back to the little thing I said yesterday that we could have made it a little  
9 more flexible to be even more grateful. There might be day they'd say boy, I wish you had put a  
10 connection somewhere else.

11 MEMBER STETKAR: Spray the containment, for example.

12 MEMBER BLEY: For example. And I think that idea of making sure B- the issue of  
13 how much you train on these and that sort of thing is a different issue, and that does interfere to some  
14 extent, although it might not be the same people that we're training. From the things we hear, it would  
15 be a lot of other people who aren't every day in the running of the plant who are going to be taking  
16 over the running of the plant and making sure they're up to that task, is something that B-

17 MR. REED: Yes. To some extent, I think you're right. As long as I'm not taking an  
18 operator, you know, out there and training him so much on SAMGs versus safe B-

19 MEMBER BLEY: And the arguments for that have always made sense, but having  
20 them so they could give guidance to the operators B-

21 MR. REED: Yes.

22 MEMBER BLEY: B- and for the people who are, if we go that route, taking over the  
23 B-

24 MR. REED: I think if we had the guidelines set, you know, as a requirement and it

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1 was maintained and updated over time, I mean, there's I think a substantial improvement in the most  
2 recent SAMGs that EPRI put together. You know, Ed can talk to that. He's reviewed them, and so there's  
3 a lot B- these things have really improved from 1992 to 2012, and the Owners Group and industry to  
4 their credit has done a great job. So, you know, we'd like to make B- you know, get the benefit of that,  
5 but at the same time the minute you do that, if you start to get B- say the B- we start to look at SAMGs  
6 and now we start to say well, if you think it was difficult doing the mitigation strategies order and trying  
7 to figure out how much is enough and what's right, imagine what that would be in a beyond design  
8 basis type of scenario with core damage, and how do we get involved with that from regulatory  
9 space? That's what concerns me, because that's extremely difficult to do, and we could get very heavily  
10 resource-intensive and start driving this into a lot of detail. And then guess what, all our folks and  
11 resources now have gone off, you know, basically away from plant safety and over here in the space  
12 here, so that's one of the concerns I have.

13 MEMBER BLEY: But I think you can balance that. And the idea that these are out  
14 there and you're looking at them to make sure they're up to date, people are doing what they say  
15 they're doing with them, makes a lot of sense. I haven't heard, and there might be a tremendous feeling  
16 against having some oversight on these SAMGs. And I think it sounds like we're past the point that we  
17 will have oversight. We do now have oversight on the FLEX equipment and what needs to be in B5B. It  
18 would be a shame to let worries not have us make sure this stuff is available.

19 MR. REED: And that's B-

20 MEMBER BLEY: Now, how much you train on it, most of those situations as they  
21 were originally set up, you've got time to work things out. You get lots of help. But not having that  
22 guidance available, not having the equipment that can make it work better, just because we haven't  
23 kept vigilance on those B-

24 MR. REED: Yes.

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1 MEMBER BLEY: B- would be a shame.

2 MR. REED: I've got to keep remembering, they do exist, and they're in place,  
3 requiring them. And that's why B- that's a good reason to put this thing out there and get the feedback,  
4 so folks out there may be able to inform us about how we can get that struck right, get the maximal  
5 benefits, minimal impact, get the benefit of all that work and all that thought, and maintain it, and not  
6 get us all of our attention, everybody, too much off the rails and over in some place where it's probably  
7 not helping any of us in terms of public health and safety.

8 MEMBER BLEY: We don't get to talk to INPO very often. We're going to again soon,  
9 and we did not long after the accident occurred, but the folks we talked to at that time were pretty sure  
10 they were going to be tracking these a lot more than they ever had just because it's there.

11 MEMBER SKILLMAN: I'd like to reinforce Dr. Bley's commentary here on the  
12 importance of these. Thirty-five years ago we were seven months into the TMI-2 accident, and I  
13 guarantee to if those crews had had something like SAMGs, I don't know that the outcome would have  
14 been radically different, but I believe that the thinking process that was really being done ad hoc would  
15 not have been ad hoc. And there would have been some structure to the chaos that was occurring on  
16 March 29th.

17 So, I think the thinkers in the industry would say these are worth, I don't want to say  
18 codifying. These are worth being created in a very similar fashion as the EP, as the emergency  
19 procedures so there's a smooth flow and transition either into the SAMG or into the EDMG, so the  
20 teams in the control room really have comfort that they know when to move, and how to move to  
21 provide the greatest protection for the containment, for decay heat removal, and for fission product  
22 release. I'm with Dennis.

23 MR. REED: And there's been an awful lot of work, and I think that's out there, you  
24 know. It's already occurred, and this is basically about making that work a requirement. And I don't

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1 know if you want to say B- Ed, we're fortunate enough to have Ed. He's been an expert on this forever,  
2 and he's actually looked at the new work that has been done.

3 MR. FULLER: This is Ed B- is this on?

4 COURT REPORTER: Yes, it is.

5 MR. FULLER: Okay. This is Ed Fuller. Forever is a relative term, and permanent is an  
6 absolute term. Regarding what Dennis was saying, I think that's very valuable insights, and I don't  
7 know your name, sir.

8 MEMBER SKILLMAN: I'm Dick Skillman.

9 MR. FULLER: I appreciate what you said, as well.

10 The thing about the SAMGs is, yes, they've been a voluntary initiative for a long time,  
11 officially since 1998 when all of the plants had to be in compliance, but really quite a bit earlier than  
12 that, in the early '90s when the EPRI Technical Basis Report was developed and scrutinized very closely  
13 by Owners Groups and the utilities. So, it's been an effort all along to find out what the right strategies  
14 would be, the high-level actions would be, and put that in the context of the various designs. And in my  
15 opinion, the industry did it right, that these SAMGs were quite good. Of course, there's always room for  
16 improvement, and improvements are still happening. So, by the time 1998 came, I think we probably  
17 were in pretty good position.

18 Of course, after the Fukushima accident, it was realized that certain things were not  
19 properly addressed, or not addressed rather at all, particularly regarding spent fuel pool, and alternate  
20 water sources. So, when EPRI made its revision to the Technical Basis Report, it added five more  
21 candidate high-level actions which made sense. So, I took the time to review the new material, found  
22 first of all that, indeed, the 15 candidate high-level actions identified still were valid, and the five  
23 additional ones, in my opinion, are appropriate.

24 So, in terms of providing a technical basis for the rule language here which is very

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1 short and simple, you know, protect B- try to prevent the core from melting, and try to prevent B- try  
2 to mitigate fission product releases, try to keep the containment integrity as long as possible, those are  
3 very simple. And I believe the approach taken is a good one.

4 And the reason why I think it's a good idea to make sure this is a rule is that after  
5 Fukushima, some of the Staff went out and found that perhaps these weren't B- perhaps the training  
6 wasn't being done as quickly, or thoroughly as it could have been, and perhaps people weren't up to  
7 speed on how to deal with severe accidents. So, I believe that we're not asking the industry to really do  
8 anything different, just to make sure they keep doing it.

9 CHAIRMAN SCHULTZ: Thank you. Tim?

10 MR. REED: Yes.

11 CHAIRMAN SCHULTZ: Just one comment and I'll make it short, but you mentioned  
12 the work that has been done on the Mark I-Mark II plants, and we talk about in this context after core  
13 damage, there was a lot of good work done to identify what could be done to prevent core damage and  
14 all of that. And I just want to make sure that that's captured going forward, as well. Slide 13.

15 MR. REED: Sure, and I think I apologized once before about not providing draft  
16 guidance, apologize again. Basically, our draft guidance is actually fairly extensive. As you can see,  
17 we're planning to have a Draft Guide 1301. Principally, we review the most substantial portion of this  
18 rule, and that's the mitigation strategies work, was not going to become 12-06 Rev 1. That's under  
19 development right now. In fact, there was a public meeting a couple of days ago on that work, and  
20 that's rolling into 12-06, the Lessons Learned, and the alternatives, and a lot of good information that  
21 has resulted over that time period implementation of mitigation strategies.

22 In addition to that, we have a Draft Guide that would simply endorse NEI-12-02, and  
23 that's the guidance that was developed in support of the spent fuel pool level instrumentation order.  
24 That's NEI-12-051, and simply endorse that as one acceptable way to combine with the high-level

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1 performance-based requirements that we put in this rule, or the draft rule as it exists right now, and  
2 that's the wide range spent fuel pool level requirement that you see currently in the draft language.  
3 So, that would be an acceptable way.

4 In addition to that, we have several sets of additional guidance. First, there was a  
5 staffing assessment set of guidance that we endorse, that's in NEI-12-01. We have guidance in  
6 NEI-13-06 which goes to the drills, and gives drills in the EP portion of it. That's there, and we're in  
7 good shape. I think we can endorse that guidance. We're basically crossing Ts and dotting Is, but we're  
8 close on that.

9 And then we have NEI-14-01, which gets into this integration and SAMGs portion of  
10 this. And that's where we have to fight the issue on SAMGs. So, right now endorsement of NEI-14-01,  
11 we'd be staying out of endorsement of the Owners Group's SAMGs at this point. We're certainly  
12 familiar about other SAMGs, they're in a portal. We've reviewed them, but they haven't been submitted  
13 to us for review and approval at this point in time.

14 Again, I think, as presumptive, I think we need to determine, let the Commission  
15 determine whether, in fact, SAMGs should be requirements, and then at that point we can move on  
16 and see what we want to do with that set of guidance. So, like I said, we're not quite there on the  
17 guidance, but we have a lot of work. And I think you heard all day yesterday about, you know, basically  
18 in the field what's happening. There's been an enormous amount of work that we're trying to roll up  
19 into this. We're just not quite there in providing that draft guidance to the Committee. I again apologize  
20 for that.

21 MEMBER STETKAR: And what's the status, and what's the time B-you say we're  
22 there. It sounds like these are pretty well ready to issue. What's the schedule? Because they haven't  
23 come across our radar at all yet.

24 MR. REED: Yes, 13-06 we've been back and forth several times. I think we're in pretty

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1 good shape. 14-01, I don't believe we actually have had interactions that I can recall yet with industry,  
2 so we B- now in terms of our B-

3 MR. BOWMAN: I think we did B-

4 MR. REED: We did one time? Okay.

5 (Simultaneous speaking.)

6 MR. BOWMAN: But that is really dependent on the outcome of whether or not  
7 severe accidents should be required. The 12-06 Revision 1, which would be the Draft Guide 1301, we  
8 had our first public meeting and we're still working through some portions of it.

9 MR. REED: I've got to also point to the fact that the new provisions for new reactors  
10 is an assessment portion, and that needs to be built into NEI-12-06, so that work is ongoing right now,  
11 so that also has to occur. So, there's a little bit of a gap right there. But, otherwise, I think that's kind of  
12 the lay of the land right now as it exists, so we're not quite there.

13 (Simultaneous speaking.)

14 MEMBER STETKAR: So, like are we talking, you know, a month, six months, 12  
15 years? Do you have any kind of time B-

16 MR. REED: Personally, if you ask me right now, I would say a couple of months.

17 MEMBER STETKAR: A couple of months, okay.

18 MR. REED: Maybe two, maybe three at the most. I don't think too far off.

19 MEMBER STETKAR: Okay, that's fine. Thanks.

20 MR. REED: But I want the Committee to have the benefit of all the information if  
21 you're going to weigh in on this proposed B-

22 MEMBER STETKAR: Well, I mean, typically we get an opportunity to see whether or  
23 not we want a briefing before a Draft Guide is issued for public comments. And I want to make sure  
24 that we have that opportunity.

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1 MR. REED: It's been my experience that, you know, ACRS is more interested in Draft  
2 Guidance, actually, so that's why I'm sensitive to this.

3 CHAIRMAN SCHULTZ: It can be that case. Eric, in your remark, did you mean that  
4 NEI-14-01 has a dependency on the White Paper and the Commission's views on the White Paper?

5 MR. BOWMAN: No, 14-01 includes some addressing of the severe accident  
6 management guidelines B-

7 CHAIRMAN SCHULTZ: Okay.

8 MR. BOWMAN: B- and the extent to which we need to actually endorse it would  
9 depend on whether or not those actually become B-

10 CHAIRMAN SCHULTZ: You're going to get into this further on the next slide.  
11 Correct? Slide 14.

12 MR. REED: So, going to the status we're working hard, we're making progress, we're  
13 meeting as a work group basically every day, and we are making progress. I figure there's an awful lot  
14 of complexity, a lot of internal interaction across the Agency on this, so it's certainly created a  
15 challenge. So, we're working to complete that, the language, the supporting section by section analysis,  
16 in fact, the entire proposed rule package and all the supporting analyses, the reg analysis, the backfit  
17 analysis, and also this draft endorsement of the regulatory guides I just mentioned.

18 We're scheduled to provide this proposed rule to the Commission as a practical  
19 reality is truly impossible at this point in time, so I don't know exactly what it will take, how much  
20 more. I had mentioned in my gut, I think it's a couple of months, two to three months, and I do believe  
21 we did that. We still could meet the end date, by the way, of the end date providing the final rule to the  
22 Commission by end of 2016. Just so folks know that that's the date. I think our Commissioners have  
23 committed external stakeholders that I think that's the important date from their perspective.

24 Now, I would also add that in terms of public health and safety, I think there's

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1 another perspective that needs to be minded here, and that is, in fact, almost entire amount of safety  
2 return is already occurring right now in the implementation of the orders. And it's mostly for the  
3 mitigation strategies order, okay? So, that in terms of safety, that if you're looking at it from an external  
4 stakeholder feedback, you know, and concern about this Agency, they should be concerned about  
5 implementing the order.

6 This rulemaking in terms of additional safety, I don't see doing much substantial.  
7 Even though I argued qualitatively for SAMGs, I think if you look at it from a quantitative standpoint  
8 and safety space, probably not a lot of return for public health and safety. So, that's why I'm saying the  
9 orders in terms of public health and safety, I think, where that focus ought to be. And the rulemaking,  
10 nonetheless, it's a Tier 1 activity, so you know in terms of external pressure that was a December 2016  
11 type of final rule schedule, but I'm trying to make sure people are aware from a public health and safety  
12 standpoint, I don't think this rulemaking in that perspective is doing a lot.

13 So, certainly, we're going to have a meeting with the full Committee, which is almost  
14 this Committee, with perhaps one more person, I think.

15 CHAIRMAN SCHULTZ: A few more.

16 MR. REED: More, Dana Powers isn't here, so I mean B-

17 CHAIRMAN SCHULTZ: That's correct.

18 MR. REED: Exactly. And that would be on December 4th, which is only actually a few  
19 working days from right now. And then we'll have I think, obviously, future meetings with this  
20 Committee on the final rule, too. Obviously, that goes without saying, so that's B-

21 CHAIRMAN SCHULTZ: Well, three people are not here today. And as you said,  
22 you're working every day, so plenty of time between now and the full Committee.

23 MR. REED: Well, you know, I B- even this week some B-

24 CHAIRMAN SCHULTZ: Other questions on the status? Are we going to have a

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1 discussion, Bill, associated with B-

2 MR. RECKLEY: If you can give me a little time.

3 CHAIRMAN SCHULTZ: Sure, that will be fine.

4 MR. RECKLEY: So, this discussion will be the COMSECY. You saw it as a Draft White  
5 Paper. We talked about this at a full Committee meeting on October 3rd, kind of high-level discussion.  
6 We subsequently provided the Draft White Paper.

7 This topic of trying to integrate these activities, we talked to industry and other  
8 stakeholders in a couple of public meetings, and a couple of weeks ago I think NEI dropped by and I  
9 know you all talked about the letter that they had sent in on November 4th, where there seems to be a  
10 general alignment. There's a lot of details, obviously, that would need to be worked out, but it does  
11 seem to be a movement towards an approach.

12 As you saw in this discussion on the rulemaking language, the current status is  
13 confusing, but there's a couple of tracks that are going on at the same time. And we apologize because  
14 it all kind of comes to a head right now. And I think actually it works out pretty well, you guys ended up  
15 being the enforcement function which was pretty good. However, the tracks are not B- the mitigating  
16 strategies are good all hazard plans, but not necessarily protection against all reevaluated hazards.

17 Reevaluated hazards on another track under 50.54(f), Requests for Information with  
18 the regulatory decision to come after, so it's fairly common NRC practice, issue a Request for  
19 Information, a Generic Letter, a 50.54(f) letter, and then determine regulatory action. And that's the  
20 track that that is on.

21 The concern that drove the COMSECY was the same concern that Dr. Stetkar and  
22 others have brought up that, as Tim has mentioned, the backfit rule. You look at all of these pieces and  
23 how they will work, that there could be at the end of a day a real potential that you would have good  
24 all hazard plans that would not survive a reevaluated hazard, and we would not have a strong

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1 regulatory basis to make it do that. So, that really becomes the driving purpose of the COMSECY, to ask  
2 the Commission to affirm that when they told the Staff to pursue mitigating strategies for beyond  
3 design basis external events, that in my language they were serious about the external events part of  
4 that title. Otherwise, again, it's a good all hazard plan, it's a good backup to station blackout and loss of  
5 heat sync, but the external events part, ahh, not so much. So, that's the reason for the COMSECY, to  
6 make sure that there's some minimum action taken.

7 The impact of that, as I mentioned earlier is B- what you heard earlier on the  
8 language of the rule would have to change if we went down this approach. And, again, it would have  
9 been better had the sequences worked out differently, but it is what it is. So, when we meet with you  
10 on the 4th, you're going to have to look at these things kind of together and consider the impact of one  
11 on the other.

12 The language that you're seeing is generally consistent with the White Paper. I've  
13 had to deal with lawyers and others, so if you saw redline strikeout it looks like it's a lot of changes, but  
14 it's not really, changed in words but basically the same concept that you saw in the White Paper.

15 MEMBER RAY: We should tell people on the line that we're on Slide B-

16 MR. RECKLEY: I'm sorry. The second slide.

17 MEMBER RAY: Yes, correct. I'm looking at this language here that I don't know  
18 whether the lawyers crafted it or not, but the reevaluated flooding hazards from Recommendation 2.1  
19 within, interesting word choice, that are mitigating strategies for beyond design basis external events.  
20 What does that mean? I listened carefully to what you were saying, but B-

21 MR. RECKLEY: The change would be that mitigating strategies which would be FLEX  
22 plus potentially more than FLEX right now as it would be described, but what the Staff would say falls  
23 under the rule of having mitigating strategies would be required to address the reevaluated flood.

24 MEMBER RAY: Okay. Well, the way it's expressed is they need to do this, but now

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1 you said it in a way that makes it more clear, I guess, would be obliged, or required.

2 MR. RECKLEY: I didn't have the benefit of rule people.

3 MEMBER RAY: What?

4 MR. RECKLEY: I didn't have the benefit of rule people to get my words. These are  
5 mine, so they may not be the best. But, basically, the bottom line is that there will be a plan in place for  
6 the reevaluated flood under mitigating strategies.

7 MEMBER RAY: Yes, but see the word "under mitigating strategies", or within the  
8 mitigating B-

9 MR. RECKLEY: Okay.

10 MEMBER RAY: The connection there is what is so hard to really understand. I mean,  
11 if you just stopped by saying they need to reevaluate flooding hazards, and didn't say anything more,  
12 then that would be B-

13 MR. RECKLEY: Well, that's where we are now. Basically, what we're proposing to  
14 change is you need to do something about the reevaluated flood hazard. And you're going to do that as  
15 part of mitigating strategies.

16 MEMBER RAY: Okay. And that's where we get to the connection that we B- at least I  
17 brought up a couple of times yesterday and today, which is that the mitigating strategies, in fact, do  
18 address reevaluated external hazards. You know, I asked the question did it or not, and the answer was  
19 well, no, but in this example here the answer is yes.

20 MR. RECKLEY: Well, one way to look at this is that you have a good all hazard  
21 plan let's say, and to some degree it's going to address events beyond your normal or existing design  
22 basis. By its nature, it will B-

23 MEMBER RAY: By definition, of course it does. yes.

24 MR. RECKLEY: It will. All right.

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1 MEMBER RAY: That's what it's for.

2 MR. RECKLEY: Now what we would be requiring is you take a specific hazard or  
3 hazards in the case of flooding because there's more than one mechanism, and you take those  
4 reevaluated floods, and as a test against what you've put in place for mitigating strategies you assault  
5 the plant with that new hazard. Mitigating strategies will have to address those specific scenarios.

6 MEMBER RAY: Okay.

7 MR. RECKLEY: So, take the case of a connection. The all hazard plan might have  
8 connection on Elevation X, but I have a flooding hazard that's X+. This would say you have to address  
9 an X+ flood. You can move your connection, you can come up with another plan, but you have to have  
10 something within mitigating strategies to address the higher flood.

11 MEMBER RAY: Wait a minute, let me just finish the thought here. Supposing I said  
12 oh, I'm going to change the design of the plant so it can withstand this new flood. Now what do I do?

13 MR. RECKLEY: Well, if a licensee were to say that I am going to B- I am as a licensee  
14 going to take the reevaluated flood, and then basically call that my new design basis flood, protect all  
15 safety-related equipment from the new design basis flood. Right?

16 MEMBER RAY: Right.

17 MR. RECKLEY: Under our current approach, they would then screen out of  
18 Recommendation 2.1 because the new hazard is bounded by their design basis flood, in effect. It's not  
19 set up this way.

20 MEMBER RAY: Okay.

21 MR. RECKLEY: But in effect B-

22 MEMBER RAY: All right, but that's a choice that exists. Yes or no?

23 MR. RECKLEY: Yes, the licensee could take that approach.

24 MEMBER RAY: It's never mentioned as a alternative. Is it just supposed to be

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1 obvious?

2 MR. RECKLEY: I suppose. I'll be honest, I didn't think any licensee would  
3 contemplate such a B-

4 MEMBER RAY: Well, I don't know why we want to be so dismissive of that, because  
5 it could be quite simple, as a matter of fact.

6 MR. RECKLEY: It could be. The dilemma, I guess, when I look at it from my side of the  
7 fence is whether we could make a licensee do it.

8 MEMBER RAY: Well, then B-

9 MR. RECKLEY: So, I'm always looking at what can we make them do versus what  
10 they might elect to do.

11 MEMBER RAY: You're saying the difference between adequate protection and  
12 backfit, perhaps, but let's leave that debate aside.

13 MR. RECKLEY: Right.

14 MEMBER RAY: It's just that this is a case which I've been asking about, because it  
15 seemed to be, at least in some people's mind true, that oh, well, yes, I do have this new hazard.

16 MR. RECKLEY: Right.

17 MEMBER RAY: And I'm going to address it with mitigating strategies. Now, that's a  
18 profound change in the way we have traditionally done business.

19 MR. RECKLEY: Right. And the way the White Paper is crafted is that it tries to set out,  
20 and that the COMSECY is set out, that at a minimum mitigating strategies would address the  
21 reevaluated hazard. Then after you establish or re-establish as a regulator that's the minimum  
22 requirement, we'll look at the re-evaluated hazards to see if anything else needs to be done.

23 Now, if you had a very high frequency flooding event, the Agency may very well  
24 decide the frequency and consequences of that are really B- should be considered in the traditional

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1 design basis sense, then the Staff would pursue that for that plant under those circumstances.

2 MEMBER RAY: Okay. But let me just assert to you for whatever it's worth that I don't  
3 think that possibility is being understood.

4 MR. RECKLEY: Okay.

5 MEMBER RAY: It's assumed that what you say is so, perhaps, by people.

6 MR. RECKLEY: Okay. There's actually in the COMSECY B- there's actually, in  
7 discussions with the lawyers there's now actually a sentence that says that.

8 (Simultaneous speaking.)

9 MR. RECKLEY: I know, you will have it this afternoon.

10 MEMBER RICCARDELLA: I didn't see that as a minimum in the B- reading the  
11 COMSECY, I didn't get that as a minimum connotation there.

12 MEMBER STETKAR: That White Paper certainly does not convey that notion.

13 MEMBER RAY: Because it is as if we're now going to address something that we need  
14 to address by mitigating strategies, which almost says it's okay to let something bad happen, and then  
15 mitigate it, instead of avoiding it happening in the first place.

16 MR. RECKLEY: Yes.

17 CHAIRMAN SCHULTZ: No.

18 (Simultaneous speaking.)

19 MR. RECKLEY: Let me just finish. But the difference here is, in flooding in particular,  
20 we're taking models and approaches that are used for siting. And I can't re-site a plant. Right? So, I'm  
21 taking hazard information that I use in siting, and I'm applying it to an operating reactor. And we have  
22 to look at it from a backfit standpoint of what can we require the licensee to do. Obviously, they can't  
23 move, and in many cases B-

24 MEMBER RAY: You're not talking about moving. Look, you're talking to somebody

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1 who changed the SSE from .5 G to .67 G. It can be done.

2 MR. RECKLEY: Yes.

3 MEMBER RAY: You can put seals on doors. you can do things.

4 MR. RECKLEY: You can, yes. I'm not disputing that it can be done. We have to look at  
5 it from the standpoint of what's the safety benefit, which means what's the difference in the  
6 earthquake between .5 and .75.

7 MEMBER RAY: That's B-

8 MR. RECKLEY: And what does it cost to make those modifications, and try to come  
9 up with a balanced view of what we want to put in place as a requirement.

10 MEMBER RAY: But that process I'm just suggesting to you isn't really clearly part of  
11 the discussion here, and it should be.

12 MR. RECKLEY: Okay.

13 MEMBER RAY: In other words, mitigating the consequences of something that you  
14 can't make some change to prevent may be okay given whatever probability you want to assign to it.

15 MR. RECKLEY: Right.

16 MEMBER RAY: But preventing it from happening in the first place is clearly what we  
17 have traditionally viewed as the better choice.

18 MR. BOWMAN: I think one of the things that we see as potentially being missing  
19 from the equation is the part that you mentioned, whatever probability you want to assign. So, the new  
20 methodologies that are being applied for determining the flood hazards, if they don't assign a  
21 probability for the occurrence of that flood hazard, they don't fit in very well with the analysis to figure  
22 out whether or not it's justifiable to change the design basis.

23 MEMBER RAY: Look, I'm not trying to do anything other than make explicit and clear  
24 that preventing something from happening ought to be on the table, rather than just mitigating the

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1 consequences of it happening.

2 MR. RECKLEY: Okay, and I'll grant you that. And it's always better to prevent than to  
3 mitigate. Just in the terminology, we do need to talk about when we're talking about mitigation here,  
4 we're talking about mitigating core damage. I mean, that you're putting in a place B-

5 MEMBER RAY: Preventing core damage is what you mean.

6 MR. RECKLEY: Preventing core damage B-

7 MEMBER RAY: It also includes mitigating the consequences.

8 MR. RECKLEY: I understand.

9 MEMBER RAY: All I'm B- look, all I'm trying to do is get something explicit on the  
10 table and make it clear that it is an option that ought to be considered.

11 MR. RECKLEY: Yes.

12 MEMBER CORRADINI: Bill's point is it's there, but it's not clear to you it's there.

13 MEMBER RAY: I may be unique, Mike. It may be clear to everybody but me, that's  
14 true.

15 MEMBER SKILLMAN: No, I don't think it's clear at all. I think Harold is right. He's  
16 simply saying give as an option the opportunity to adjust your design basis so you do screen out on 2.1.

17 MEMBER RAY: Well, it may be a necessity.

18 MEMBER SKILLMAN: But making that option very clear provides perhaps many  
19 owners the ability to say I see a different ray of light through this problem. Just don't underestimate the  
20 capability of the owners to be clever and to be compliant. Making that option available opens up a lot  
21 of options that right now seem to be very obscure, so I think Harold is right on the money.

22 MR. RECKLEY: Okay.

23 MEMBER BALLINGER: Are you saying you're making an option or having a trip point  
24 beyond which you must do something?

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1 MEMBER SKILLMAN: It's an option.

2 MEMBER RAY: I think it should be part of the process, and I'll just leave it there.

3 MR. SHEA: Just real quick. This is, again, Jim Shea from the B- I'm actually working in  
4 the Flooding Group. I don't see any of my colleagues here but I'm doing the interim actions. But if you  
5 look at the 2.1 process as a whole, it actually does what you're talking about. For the majority of the  
6 sites, you've got to remember some of these deterministic events that we now evaluate for new plants  
7 are very conservative. If you look at the current lip event, for example, which I would say the majority  
8 of operating plants do not meet that requirement. A lot of them didn't even evaluate that, but that's  
9 basically a Noah flood. It's a Noah-type event. And, you know, one of the thoughts was you build a  
10 Noah FLEX, build the ark. So, as you look at that, if you take that into context and you look at what  
11 licensees are B- when they do their flooding hazard evaluations and they redo their lip event, in many  
12 cases they don't meet that. And then in the Phase 2, I forget exactly the nomenclature in 2.1, but part of  
13 their option will be to seal the doors, meet that lip event, and then protect their safety-related  
14 equipment.

15 It's only in some cases where you have band failures that were not part of the  
16 original licensing basis that you might have some plants that are going to have to rely on FLEX as an  
17 interim B- as a strategy.

18 Now, I can go back to Bill's concept of, if you put your FLEX pump at your current  
19 licensing basis, you're still going to have to address the dam failure in a reevaluated flood, and then you  
20 may need another FLEX pump in order to pass the hurdle of the 2.1 process. But if you're a smart  
21 licensee, you're going to take your FLEX equipment and try to B- for that specific hazard, and you're  
22 going to site it or protect it against that new hazard.

23 And I think I B- you know, I can't speak for licensees, but what I've seen as far as  
24 looking at some of these plants phase in Category 2 of interim actions, that's what many of them are

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1 doing. And that's what it is, so you've got some plants that can't meet that lip new requirement, they're  
2 going to seal their doors, and that's part of their interim actions. And eventually in that last phase to  
3 submit their 2.1 information, they would either, you know, change their design basis to those doors, or  
4 just keep that as interim actions and say that they're protecting their safety-related equipment in that  
5 event. But you've also got to put it in context. These new Chapter 2 events are very conservative.

6 MEMBER CORRADINI: So, can I ask about that? So, that means that you have an  
7 estimate of the frequency, or you don't? It's just simply B-

8 MR. SHEA: No, and that's actually B- that's one of the things one could say, that  
9 they're not looking B- we don't have any risk frequency when it comes to Chapter 2 events. There are  
10 some proposals to look at that in the future to start thinking B- you know, put some probability to  
11 B- and it really has to do with if you do the combination events.

12 Right now when you look at deterministically individual events at one time, so  
13 then the question is what happens if I put all these events together, what's the flood level there? But  
14 we've never gone down that risk path. That's why you take these deterministic events that are very  
15 conservative.

16 MEMBER RAY: Well, let's just say the people who put Fukushima where it is didn't  
17 do so consciously thinking it was going to be inundated. They believed it was a very rare event, also, or  
18 a Noah flood, if you want to call it that.

19 We're taking this too far, if I can say. My only issue is what obligation is there to try  
20 and prevent the need for mitigating strategies to be employed in the first place. And it's not clear, and I  
21 B- that's I think all we need to say at this point.

22 CHAIRMAN SCHULTZ: That should be clear. And, Jim, thank you for your comments  
23 and getting them on the record. I appreciate that.

24 MR. RECKLEY: Okay. Quickly going to the next slide. The second point that the

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1 COMSECY will be asking the Commission to affirm or acknowledge might be a better word in this case,  
2 is that there will be some scenarios, and Jim just mentioned some of these dam failures that may not  
3 have been originally considered when plants were sited and licensed, that will involve mitigating  
4 strategies, and some unconventional measures.

5 Quickly upon being notified of a dam failure, plants shutting down, changing modes,  
6 preparing ahead of time for being inundated which for some scenarios is just a lot of water, and would,  
7 I guess in plain English, going to overwhelm the site. But what the regulation as we are proposing it in  
8 the paper would say even under those circumstances a licensee needs to be able to show that they  
9 have some ability to mitigate.

10 I mean, it will be obvious in these cases the plants are lost, basically, as an electric  
11 plant or financial asset, but even in such circumstances that mitigating strategies would have to be in  
12 place to prevent core damage, or damage in the spent fuel pools. We thought that was important  
13 enough to ask the Commission to acknowledge or affirm that there would be such scenarios. And then  
14 B-

15 MEMBER RAY: Of course, you know Watts Bar does today have a wet site strategy  
16 which long predates all of this.

17 MR. RECKLEY: Right. Yes, this won't be the case for all plants, but it'll be the case for  
18 some plants.

19 MEMBER RAY: My point is, it's a perfectly satisfactory design basis to do what you  
20 just said.

21 MR. RECKLEY: Okay.

22 MEMBER RAY: Which is to be aware of impending flood, shut down the plant, and to  
23 hook up special equipment to mitigate. And one wouldn't say that that was anything other than part of  
24 the design, at least I don't.

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1 CHAIRMAN SCHULTZ: Go ahead, Bill.

2 MR. RECKLEY: Okay. Last thing we'll be asking the Commission to affirm is the  
3 B- really the point of most internal discussions, and that is actually the integration of these two  
4 activities. And the White Paper actually talks about this in some detail and the concerns, but this goes  
5 really to the need, or our feel the need to look at the big picture and how all these parts are fitting  
6 together, and the possible outcomes, and trying to make sure that we end up with at least a minimum  
7 requirement. And to factor in past experience on cases where the technology and the analysis was  
8 being developed. And we think flood fits into this category. As Jim mentioned, and Dr. Corradini,  
9 probabilities are being introduced to the flooding but it's not as well established as in seismic and some  
10 other areas, so it's difficult for us to fit this into our process.

11 Traditionally when that's the case, technologies are being developed, new models  
12 are being developed. What that takes is time, and we're concerned that as we get into this mode of  
13 analyzing and developing models, and introducing new concepts like probabilistic flood hazards, that  
14 we'll miss an opportunity to address the actual reevaluated hazards via what we think is a practical  
15 way, which is at a minimum through mitigating strategies. And then as the technologies develop, if the  
16 understanding is such that we should do more, that's the normal process. But we don't want to miss an  
17 opportunity now to build into the mitigating strategies the need to address the reevaluated flood. And  
18 that really is what drives us to try to integrate these at this time in order to look at this big picture, how  
19 the different pieces are moving in terms of timing, what the requirements will be, what the chance of  
20 ending up with nothing is. I mean, that's the B- if we stayed on the current track and let backfit  
21 analyses take their course, is there a chance that we would end up with no protections against the  
22 reevaluated hazards? As we look at it, you have to acknowledge that is a potential. So, when we look at  
23 it in the big picture, we came up with the proposal in the COMSECY, as it's been provided.

24 Last slide, you will get the COMSECY, if not today, Monday. Then we have the full

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1 Committee on December 4th, I think, where this is also on the agenda.

2 CHAIRMAN SCHULTZ: Okay. I'm going to thank you, Bill, for the presentation and  
3 discussion. We are going to see the COMSECY soon, and we'll have an opportunity to talk with you  
4 again at the full Committee meeting.

5 And we have other consideration, comments coming up this afternoon on this topic,  
6 so I would like to quickly move you folks out from the table, and industry is going to come up. They're  
7 on a schedule to finish the morning's presentations. And we've already prepared them to move forward  
8 with those quickly, so as soon as we get the slides up we'll begin. I don't want them to move through  
9 the presentation quickly. We just need to get started quickly.

10 David, welcome. I understand you're going to be the main presenter for this B-

11 MR. YOUNG: Well, it actually will be Bryan. I'm just going to do quick introduction  
12 and turn it over to Bryan.

13 CHAIRMAN SCHULTZ: Oh, I'm sorry. Yes, Bryan. I've got you straight now. Thank  
14 you.

15 MR. YOUNG: Okay.

16 CHAIRMAN SCHULTZ: David, please do the introduction.

17 MR. YOUNG: Good morning, everyone. My name is David Young, and I'm a Senior  
18 Project Manager in the Emergency Preparedness Department at the Nuclear Energy Institute. With me  
19 is Bill Webster, Dave Gambrell, and Bryan Ford. Bryan is the Senior Manager of Regulatory Assurance  
20 in Entergy, and will be providing the bulk of the presentation here momentarily.

21 We appreciate the opportunity to provide an industry perspective on the proposed  
22 language for the mitigating beyond design basis events rule, and the observations that we're going  
23 to share with you here were developed by an industry task force that was formed to foster and  
24 promote engagement with the NRC Staff on development of the rule. And we've had, I think you've

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1 heard already, several public engagements on this stretching back into earlier this year. And many of  
2 the members of the task force who helped to develop these comments are in the room today, and some  
3 are up here with me.

4 So with that, again, Bryan is going to present an overview of our perspective on the  
5 rule language and then, of course, we'll be happy to take your questions and have discussion, as well.  
6 So, with that I'm going to go ahead and turn it over to Bryan.

7 CHAIRMAN SCHULTZ: Bryan, before you start, because it's coming up on the lunch  
8 hour, I am going to B- to members of the public who are on the telephone, we are going to have an  
9 opportunity for public comment after B- just after this presentation, so I didn't want people that want  
10 to make a comment take a lunch break. We will fit that in before we take a lunch break here. So, Bryan,  
11 you go ahead with your presentation. Appreciate it.

12 MR. FORD: Thank you very much. You know, as this process goes on we look  
13 forward to the chance to provide our detailed comments in the rest of the rulemaking process, but we  
14 have sat down and come up with some initial comments. And our primary one is one that I think has  
15 been discussed a little bit, is that for those areas where guidance or requirements already exist, we  
16 think that guidance needs to be able to be used as written. And we should only expand the  
17 requirements in those areas where we can see a tangible significant safety benefit of adding to those  
18 requirements. So, that's our primary comment that you'll see in several of the areas.

19 Some positives with the proposed rule. We think that the right topics are in there,  
20 and it's high-level. It supports in most cases the use of the industry-developed guidance and it  
21 reflects a significant amount of work that has already gone on. And think that it has a reasonable  
22 approach to SAMGs, which as you all have heard, that's been an ongoing industry effort for years.

23 Some areas for improvement. The first one is on the additional requirements, or the  
24 requirements for decommissioning plants. Although it wasn't specifically culled out in the list of what

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1 was a backfit or not a backfit, the current order EA-12-49 wasn't issued to plants that were in the  
2 decommissioning state. They've been in the decommissioning state for some time. When it came out,  
3 the revised rule would add requirements to those plants, it would also add requirements to plants that  
4 have been granted some relaxations to these orders since they went into the decommissioning state.

5 As many studies show, once we have permanently defueled, the risk associated with  
6 the spent fuel pool decreases relatively quickly over time, and we think that the order, if it's going to  
7 require items for decommissioning plants needs to reflect that. So we don't necessarily disagree with  
8 requiring a strategy for additional spent fuel pool refill strategy, but it shouldn't go out until all fuel has  
9 been removed from the pool. We think the bulk of the risk went away well before that time, and we  
10 don't see that those requirements should be added to a plant such as Millstone Unit 1 that has been  
11 decommissioned, or in decommissioning for over a decade.

12 There's also requirements in there on secondary containment. The wording of the  
13 requirement is kind of confusing. It can be read to be adding significant requirements, it can be read to  
14 not add very many. As a minimum it sure needs to be cleared up, but we're concerned with the  
15 secondary containment requirement that's in there.

16 Another area is the equipment section, specifically, the A, B, and C section of the  
17 equipment. We really think that it's something that would be better addressed at the guidance level, and  
18 we think that the thrust of the requirement is already in Rule Element (b)(1) which says that I have to  
19 have it readily available and functional equipment to implement the mitigating strategy. And that is the  
20 requirement that is being used to insure say for the B- what I think of as the (hh)(2), the extreme  
21 damage mitigation equipment. That is what we're using to insure that that equipment is available, and  
22 it seems inconsistent to put additional requirements on the mitigating system equipment just for one  
23 section.

24 With respect to multi-unit sites, you know, we have some concerns with the wording

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1 for the extreme damage mitigating guidelines, or the B5B requirements, and how it's implementing the  
2 previous orders and guidance. Those were for single unit events. It's not real clear, some of these  
3 requirements are dual unit events, some of these are single unit events. We think that should be  
4 clarified.

5 There's also some ways that the staffing requirements that are in this rule, and how  
6 they apply to those specific activities we think really needs to be explored whether or not those are  
7 holding the right requirements.

8 MEMBER SKILLMAN: Bryan, let me ask you a question. With regard to your first  
9 bullet there, I would have expected industry to have made a comment along the lines, we certainly  
10 agree with FLEX, but we would like to have the option to do internal plant modifications that enhance  
11 our ability to cool, and to protect against fission product release, and that we can justify it from both  
12 the seismic and flooding perspectives. Give you an example.

13 Connecting an alternate power supply to a heater drain pump, or one of the smaller  
14 pumps in the plant that you can use to deliver water to a steam generator or to reactor vessel. Actually,  
15 making use of the same type of defense-in-depth that you would use to defend yourself in a violation  
16 when you show that you have margin. Those of us who have operated plants know you've got all kinds  
17 of margin deep within the plant, but we really B-we rarely take credit for it because we say we're  
18 constrained by the SSCs that are qualified.

19 Well, there are an awful lot of other devices in the plant that are very robustly built  
20 and they can deliver an overwhelming amount of margin, but we don't talk about them. So, I'm  
21 surprised industry didn't say we would like to have an ability to justify some of our presently  
22 non-qualified equipment that we know for certain is fit for duty and can give us the defense-in-depth  
23 that we want to have.

24 MR. FORD: And we're doing that. It's just in a different forum. Where we've been

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1 addressing that is in the revision to NEI-12-06 Revision 1, because one of the things that the plants  
2 have found as they've been developing their strategies is places where it would be more appropriate to  
3 do modifications, or qualifications, or things to installed equipment that would greatly reduce operator  
4 actions, or speed up our response times versus pulling in a staged piece of equipment. So, what we're  
5 doing is B- have proposed modifying 12-06 in Rev 1 to clarify how to, you know, use that installed  
6 equipment for the transition phase. And after the first when you're using RCIC or something like that.

7 MEMBER SKILLMAN: Are you also considering asking the NRC to adjust the  
8 language in the proposed rulemaking so that that option is acceptable under the proposed regulation?

9 MR. FORD: I'll go back and look. I didn't see anything that would prevent me from  
10 doing that, because what it said is I had to have a mitigation B- mitigating strategy. So, I didn't notice  
11 anything, but I will look to see whether or not anything concerns me to prevent that.

12 MEMBER SKILLMAN: Thank you.

13 CHAIRMAN SCHULTZ: Bryan, I wanted to ask the industry rather than the Staff,  
14 what is the schedule for the release of Rev 1?

15 MR. FORD: We have a first draft and we got comments on it day before yesterday.

16 CHAIRMAN SCHULTZ: Understood.

17 MR. FORD: We're supposed to meet it looks like the second week of December  
18 internally to try to resolve those comments. I wouldn't be surprised that we get it out first quarter,  
19 hopefully with the staff's comments resolved in it. Our goal is to get to the state where the staff is  
20 happy with it and doesn't feel the need to take exceptions, and sometimes that can take some back and  
21 forth to resolve those concerns.

22 CHAIRMAN SCHULTZ: Thank you. Anything else? We're moving to Slide 5, I just  
23 wanted to announce to the B- for the benefit of folks on the phone. Thanks.

24 MR. FORD: Next one is on the change controls. The Staff talked about this a little

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1 bit in their presentation. We agree we need change controls for these beyond design base events. We  
2 don't want to try to apply 50.59. We think we need to work to define that process quite a bit better. I  
3 think most of that can be done in guidance.

4 One place that we think we need additional guidance is the interface with the  
5 change controls for the normal design basis issues. I think my best example is that when we implement  
6 these mitigating strategies, we're opening doors, we're potentially going through security barriers,  
7 we're taking a lot of actions, and we don't want to get in the state of trying to evaluate those beyond  
8 design base actions in the design base world because they really don't B- many of those don't comport  
9 too well, so we think we need to provide additional guidance on just how you navigate those change  
10 control processes for these types of things.

11 And then we need to define the NRC approval process better. Once we've come to  
12 the conclusion we need NRC approval, is it a 50.90, or what is that process?

13 The next thing is to talk about the B- basically, the subject that was the discussion of  
14 the COMSECY. You know, one of the items we've discussed quite a bit is the impact of the new  
15 B- potentially new evaluated hazards on the mitigating systems, and the plants themselves.

16 Our major focus so far has been responding to the NRC orders and the work  
17 associated with the Requests for Information. We think our next big task is trying to integrate the new  
18 information from the reevaluated hazards into our plant in the mitigating systems in the work we've  
19 been doing.

20 Now, the Staff pointed out that they don't have that in their current draft rule  
21 language. We did provide a suggestion from the industry which seemed pretty consistent with what is  
22 in the COMSECY, and we agree with that path.

23 You know, as has been discussed here, the current mitigating strategies were  
24 developed using a consequence-based approach, because we didn't know the event. So, since we don't

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1 know, you know, how big, or what kind of beyond design base event is, we're going to define here's the  
2 conditions you have to deal with. So, we assume that we've lost all of our AC power and access to our  
3 normal heat sync, and then we define how you would take credit for installed systems.

4 So, we think the difference here is that as you get the B- sorry, I'll finish this slide  
5 before I go to the next one. So, the B- from that the current design basis govern the strategies and how  
6 we made our designs. And we recognize that that may not be optimum based upon updated hazard  
7 information, so we think a key difference going forward is once we have the reevaluated hazard  
8 assessment, you know, we don't necessarily have to use the defined here is the conditions that you're  
9 in after the event; instead we can use the hazard itself to develop the initial conditions that you have to  
10 evaluate against. So, you would know whether or not with this evaluated hazard you have lost your  
11 offsite power source because you know what the level is, and you know where the power comes in at.  
12 So, you could then develop a specific set of conditions for the new hazard itself, and then determine  
13 the impacts on key equipment, availability of equipment, you know, what actions you could take to  
14 address it.

15 MEMBER CORRADINI: And you B- just to clarify. So, you would go through all of  
16 B- not just flooding, but you go through all of these in a similar fashion?

17 MR. FORD: What I have seen is that we are also looking at how you would go about  
18 addressing seismic, let's say. But right now we're focused on flooding and on how to resolve that.

19 So, our suggestion is that we review the impact of the reevaluated external hazard  
20 information on mitigating strategies, and the goal being that we can assure that we still have the key  
21 safety functions to restore or maintain them, or we may have to develop a hazard-specific mitigation  
22 strategy, or a targeted mitigation strategy to go in and address that.

23 Now coming up to a discussion that happened earlier, personally I think it is  
24 acceptable to go increase the protection of your plant such that you have protected the normal

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1 safety-related components, and that they provide you the protection you need for the revised hazard.  
2 That's what I would personally prefer to do in all of the cases, but the next step would be to make sure  
3 that your mitigating strategy works, or modify it to make sure it works, and if that doesn't work you  
4 may have to come up with something different to go deal with the specific hazard.

5 MEMBER BROWN: So, is that directly related to Harold's comment earlier. I mean,  
6 you'd prefer more the upgrade, increase the licensing basis slightly?

7 (Simultaneous speaking.)

8 MR. FORD: If I can. I mean, this is myself personally, if I can, I want to protect the  
9 plant. And I would rather have the B-

10 MEMBER BROWN: Rather than mitigate.

11 MR. FORD: Yes, I'd rather have that big diesel that we keep up all the time. I'd love to  
12 have that working and providing me all the power I need, and protect my asset going forward. So, if  
13 possible, I think that'll be the path that many people will take, is can I do that reasonably? And in many  
14 cases you're going to be able to. I mean, we've already done it at a couple of our plants for the  
15 reevaluated hazard because it was pretty straightforward.

16 Other plants, that may not be something that is really viable to do, so they may need  
17 to go to the step of making it so that their mitigating systems or strategies work, or coming up with a  
18 targeted hazard, and a few plants have identified they need to go to those steps.

19 Well, Slide 9. Now, I think that was it. What other questions do you have?

20 CHAIRMAN SCHULTZ: So, what we're dealing with is a spectrum. You said  
21 personally this is what you'd prefer, and then many in the industry, and then a few, so our challenge in  
22 terms of evaluating where things stand and making the Committee's B-

23 CONSULTANT SHACK: Let me just add to thought that sort of came up before. Even  
24 if you did introduce protection to say the findings to flooding protection, it would seem to me a way

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1 that the mitigating systems works now, you'd still have to assure that our mitigating system is working,  
2 and you postulate your diesel is gone. You don't know why it's gone any more. It isn't gone because of  
3 flood, perhaps. But your mitigating system strategy would still have to assume the new revised hazard  
4 and be protected against that.

5 MR. FORD: And that's one of the things we need to talk about going forward with  
6 the Staff, is how you integrate that in. I mean, today the mitigating strategies are based upon the  
7 undefined so you just assume just a set of initial conditions, your diesels are gone, your offsite power is  
8 gone. That may not be necessary or the right thing to do when you have more specific information on  
9 the hazard that you're evaluating against. And that could severely limit for these people who need to go  
10 develop a targeted mitigating strategy, you know, what actions they could go do, because they need to  
11 take credit for the equipment that will be available after whatever this new evaluated hazard occurs.

12 MEMBER STETKAR: Bryan, do I hear you starting to focus this effort, though, on yet  
13 another very clearly defined set of check boxes that we say yes, we solved that problem, we solved that  
14 problem, rather than the more integrated process that I thought was supposed to be the focus of this  
15 whole effort? In other words, I thought at the beginning you said well, this is B- we're not trying to  
16 define a specific hazard. We're trying to establish mitigating systems and processes that are not specific  
17 to a given hazard. And the reason that we're B- you know, the Agency, the whole industry has been  
18 accused of getting too pigeonholed in the past, and we've learned that that might not necessarily be  
19 good. But what I hear you saying, maybe I'm not hearing it correctly, is well, yes, but we'll define  
20 specific strategies for a specific hazard once we can define that hazard for this specific site.

21 MR. FORD: Well, we're not talking about undoing the current work that has been  
22 done B-

23 MEMBER STETKAR: Okay.

24 MR. FORD: B- for mitigating systems.

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1 MR. YOUNG: You're just trying to recognize the difference between the work that's  
2 already been done with mitigating strategies order where we just assumed the consequence-based  
3 outcome versus what we're going to know in the future based on the hazards re-analysis.

4 MR. FORD: That's correct.

5 MR. GAMBRELL: We're trying to put this into context.

6 MEMBER STETKAR: See, some of our opinions, individuals, my opinion certainly is  
7 that you don't know what the next thing is going to be. And everybody focuses on Fukushima because  
8 Fukushima happened. We don't know what the next thing is going to be, so we don't want to define for  
9 the things that have happened, and only define for the things that have happened because that's the  
10 traditional event-focused reactionary approach. Some of the strategies that have been in place are,  
11 indeed, very good because they don't take that event-driven reactionary approach. They say regardless  
12 of how we got in this bad place, we want to be able to address it.

13 MR. FORD: And I think what we're saying is we want to keep that current flexibility,  
14 but now that we've identified some specific new information we want to insure that we have a method  
15 for maintaining or restoring the key safety functions for that new information.

16 MEMBER STETKAR: Okay.

17 MR. YOUNG: Notwithstanding you understand now the impacts from these new  
18 hazard reevaluations, I mean, you're still going to have, I think it was Eric or Tim who said that, you  
19 know, you're still going to have the tools in the toolbox for a broader response for mitigating strategies  
20 capabilities.

21 MR. GAMBRELL: That was the basis for our fundamental approach previously, is to  
22 B- since we couldn't identify a specific event, then we bounded it by a specific response, or a generic  
23 response that could provide to any hazard.

24 MEMBER STETKAR: And that's good, it's just that some of the words, at least as I

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1 heard them, sounded like well, once we understand Hazard X precisely, we can back off from that more  
2 generalized approach, and have more focus on Hazard X so we can fix that.

3 MR. GAMBRELL: Well, I think functionally we're wanting to assure the same end  
4 point to make sure for a specific hazard that we reach the same functional requirements or end point.

5 MEMBER STETKAR: But not B-

6 MR. GAMBRELL: They may not need all of the other elements that are generic.

7 MEMBER STETKAR: Did you say may not need all of the other elements that are  
8 generic? I didn't quite hear you.

9 MR. GAMBRELL: The event itself may not necessitate the use of all the tools in the  
10 toolkit, so we want to make sure that that generic set that we put in place would be available to  
11 respond for any specific event.

12 MEMBER BLEY: But you're not throwing away the tools you don't need.

13 MR. GAMBRELL: We're not throwing away those tools.

14 MEMBER BLEY: Okay.

15 CHAIRMAN SCHULTZ: This is why we need some consensus.

16 MEMBER RICCARDELLA: But you're not guaranteeing that those tools will  
17 necessarily work in the case of certain severe events. Right?

18 MEMBER CORRADINI: Well, you don't know what you don't know.

19 MEMBER RICCARDELLA: Because you're saying that those events don't require it.

20 MR. GAMBRELL: An example could be would you utilize water from a non-seismic  
21 tank in response to a flooding event? Because you have additional capabilities at the site that may not  
22 be affected by that specific event, that you want to be able to apply to that solution.

23 MR. YOUNG: So, you're saying where we have reevaluated hazard information we  
24 can use that to inform better how we're going to implement those particular mitigating strategies in

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1 those cases. Right? But the whole toolbox still remains available at all times.

2 MR. GAMBRELL: Yes.

3 MEMBER RAY: But you also may want to protect your plant from that specific thing.

4 MR. YOUNG: And that's another B-

5 MEMBER BLEY: That's the point that you were making.

6 MR. WEBSTER: As an example, if we have a mitigating strategy or prevention that we  
7 want to protect the current diesels because it's easy, smart, right thing to do, you know, then at the  
8 same time we don't want to have to go and say well, I have to assume that diesel I just protected don't  
9 work, and I've got to make B- so, it's a combination of things that you're looking at with this.

10 CHAIRMAN SCHULTZ: Other questions from the Committee? All right. I want to  
11 thank you very much for your discussions today, but again thank you for the discussions and  
12 presentations that we heard yesterday.

13 MR. YOUNG: Appreciate the opportunity.

14 CHAIRMAN SCHULTZ: Thank you. At this time, I would like to provide the  
15 opportunity for public comments, and we'll open up the phone line, but in order of the business of  
16 providing comments I'm going to ask first in the room here. We have a number of people B- for those  
17 on the phone line we have a number of people who are in the audience here. I'm going to give them  
18 the first opportunity to speak. Any comments from the audience? Yes, please state your name and  
19 provide your comment.

20 MR. BUNT: Yes, Randy Bunt with Southern Nuclear, but also the Chair of the BWR  
21 Owners' Group Fukushima Response Committee. Just one comment was made earlier that  
22 implementing 049, the FLEX items or the rule, i.e., would not have prevented the events at Fukushima.  
23 In many of the evaluations we've done, we believe it would have because the blacksmith equipment  
24 we talked about, the installed equipment performed for a period of time until your backup equipment,

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1 or even the ones stored on site would have been available. So, the functionality we believe that's given  
2 here, and the redundancy and the diversity of it would in most cases, would have prevented that.

3 We understand on Unit 1 there were some other operator issues that would have  
4 been addressed through training and more knowledge of their isocondensers, so the thought is that it  
5 very likely would have prevented core damage. The plant would have had a significant impact to it,  
6 from a core damage standpoint there is a lot of evaluations that this rule and this activity would have in  
7 very likely terms prevented that event from going to the point it did.

8 CHAIRMAN SCHULTZ: Thank you for your comment. Any other comments in the  
9 room? Then I'll go to the phone line, and I believe the phone line is open, but the way our system  
10 works, we'd like somebody to say hello so we know the phone line is open.

11 MR. LEWIS: Marvin Lewis.

12 CHAIRMAN SCHULTZ: Hi, Marvin. If you would like to make a comment, Marvin,  
13 the phone line is open to you.

14 MR. LEWIS: Excellent, excellent. Thank you, thank you. First of all, I'm glad you're  
15 looking at this stuff daily, something original with the equipment which is what happened at  
16 Fukushima. Namely, they had to get very, very original.

17 Secondly, I'm very worried about the spent fuel pool. I feel that even when the spent  
18 fuel pool is emptied and the core is out, a lot of these nuclear power plants have storage of spent fuel,  
19 storage containers on site. The only way to empty out if they have a problem with the fuel in those  
20 storage containers, the only way to empty them out, basically, I hope, is in the fuel pool. There's no hot  
21 cell for them to be emptied out in. They have to empty them out, if they have to reprocess them in  
22 some way for transit, the only way is in the fuel pool. And they are shutting down fuel pools, emptying  
23 them out, and destroying them supposedly at San Onofre. And the people there are very perturbed  
24 about this because they have onsite storing wherein if they do get into trouble with the onsite storage

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1 or they have to prepare them in some way for transit, namely by opening them, the only way to do it is  
2 in the spent fuel pool, which is no longer in existence.

3 So, I just throw that out as a situation that is not being addressed. And thank you  
4 again for allowing me to speak.

5 CHAIRMAN SCHULTZ: Thank you, Marvin. Other members of the public on the  
6 phone line who would like to make a comment?

7 (No response.)

8 CHAIRMAN SCHULTZ: Hearing none and just letting everyone know who is out  
9 there, that we will have an opportunity at the end of the meeting for additional comment.

10 With that, I'm going to close the phone line and call a recess to the meeting until  
11 after lunch, and we'll reassemble at 1:30 for the afternoon presentations.

12 (Whereupon, the above-entitled matter went off the record at 12:23 p.m., and  
13 resumed at 1:31 p.m.)

14 CHAIR SCHULTZ: We will call the meeting  
15 back in session following the lunch recess. This  
16 afternoon -- well, let's start with this morning.

17 This morning we heard about the draft white  
18 paper, which the committee had received on the  
19 integration mitigating strategies for beyond design  
20 basis external events and its connection to the  
21 reevaluation of flooding hazards. And as we know, that  
22 white paper has been in various draft forms for some  
23 time. And some differing views have been presented  
24 regarding the white paper that was out in an earlier

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1 version. The COMSECY is coming out in final version,  
2 we expect, next week. But there were some differing  
3 views that had been presented by members of the staff.  
4 They made their views known and we wanted to hear about  
5 those views. And so we have invited first one group  
6 to come before us who gathered their thoughts together  
7 and are going to be presenting them in concert today.  
8 And we have another group that is going to present to  
9 us afterwards. And since we are going to be moving  
10 forward and inviting our views to the attention in our  
11 deliberations -- following our deliberations in the  
12 full committee, we wanted to get a full picture of the  
13 level of concerns and views in order to develop our best  
14 position.

15 With that, I would like to recognize  
16 Suzanne Schroer, who is going to be leading the  
17 presentation. Suzanne, before you start, let's hear  
18 at least an introduction from each of the members who  
19 are available for our discussions this afternoon.  
20 Jeffrey?

21 MR. MITMAN: My name is Jeff Mitman. I am  
22 a senior reliability and risk analyst with the Office  
23 of Nuclear Regulatory Regulation.

24 CHAIR SCHULTZ: Thank you.

25 MR. PATTERSON: I'm Malcom Patterson. I

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1 am a reliability and risk analyst for the Office of New  
2 Reactors.

3 MS. PROHIDA: I'm Marie Prohida. I'm a  
4 senior reliability risk analyst in NRO.

5 MR. SEE: And I'm Ken See. I'm a senior  
6 hydrologist in the Office of New Reactors.

7 CHAIR SCHULTZ: Welcome this afternoon.  
8 And Suzanne, why don't you begin with the presentation?  
9 Thank you for being here, all of you.

10 MS. SCHROER: Thank you for having us.

11 Good afternoon. My name is Suzanne  
12 Schroer. And although my name tent indicates that I  
13 am still in NRO, I have made a recent move to the Office  
14 of Research. But when this whole process started, I  
15 was in NRO but I will not be responding to your letter  
16 on 17.4 because I am in research now.

17 CHAIR SCHULTZ: Okay.

18 MS. SCHROER: This morning, we wanted to  
19 talk to you about our staff concerns regarding the white  
20 paper -- and it was referred to this morning as a draft  
21 COMSECY, so, the same thing. They are not two  
22 different documents -- about integrating mitigating  
23 strategies for beyond design basis external events and  
24 the reevaluation of flooding hazards.

25 And really before I started, I wanted to

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1 clarify a couple of things that were said this morning.  
2 One is we wanted to make sure it was clear that for some  
3 sites, the design basis floods are not rare events.  
4 So, that was kind of alluded to by a commenter. And  
5 so we wanted to clarify that.

6 And another thing that was said was that  
7 under the current R-2.1 process, if the licensee  
8 decided to protect to the new re-evaluated hazard, it  
9 would be screened out from the R-2.1 process and that  
10 is not correct either. So, I just wanted to make sure  
11 both of those were on the record to clarify.

12 So, I guess I should have started saying  
13 that I am representing a large group of staff from  
14 NRR/NRO in the Office of Research, just a few who are  
15 able to be here today. And this doesn't just represent  
16 a wide variety of offices within the NRC but also a wide  
17 variety of disciplines. The PRA staff, human factors  
18 staff, Val Barnes, who is listed on the slide is on the  
19 phone with us today as well, hydrology, geotechnical  
20 engineers. So, we really have quite a diverse group  
21 that share these concerns.

22 So, our plan today, for those of you that  
23 have the slides, is not to go through all 27 of them  
24 but rather go through the first five and then, if there  
25 is time, go through the plant examples. And the other

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1 slides are just there for your reference and in case  
2 there are questions on any of the specific concerns.

3 CHAIR SCHULTZ: We'll see how the pace  
4 goes but we have allocated a good 45 minutes for your  
5 presentation. So, let's proceed. Thank you.

6 MS. SCHROER: Okay. So, moving on to  
7 slide 2. So, we have 12 concerns that we have  
8 documented with the white paper. And in the interest  
9 of time today, we have planned to hit on only concerns  
10 5 and 6. These represent our fundamental safety  
11 concerns with the approach given in the white paper.  
12 But as I kind of mentioned, we can talk about the others  
13 if there is interest in time later.

14 So, moving on to slide 3. And this is kind  
15 of our boiled down version of our concerns for 5 and  
16 6. And the first one being that the white paper  
17 approach, as it is now, fails to address some important  
18 safety issues. It was kind of discussed this morning  
19 that the white paper approach will not systematically  
20 cover flooding protection of safety related equipment.  
21 So, it was unclear to us, as well as it appears it is  
22 unclear to you how protection would be handled in the  
23 white paper. And from the way we saw things, it  
24 wouldn't be considered at all. And we really think  
25 that is a big gap.

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1                   And the other really big safety issue is  
2           that    the    white    paper    approach    results    in  
3           non-safety-related mitigating strategies, our only  
4           defense for reevaluated flooding hazards.

5                   So, if you will remember under the  
6           recommendation 2.1 process, there were kind of two  
7           steps. The first step was to reevaluate the flood  
8           hazards using present-day guidance and methods. So,  
9           those methods that are used for new reactors. And then  
10          the second step was to do an integrated assessment that  
11          would look at the total plant response to the new  
12          flooding hazard, if it exceeded the current design  
13          basis. So, it would first look at protection, how the  
14          plant does or could protect against a new hazard. And  
15          then the second piece would be it would look at the  
16          mitigation. And when we say mitigation, it is a little  
17          bit different than the mitigating strategies that have  
18          been discussed and are discussed in the white paper.  
19          Mitigating strategies is more lax and the paper also  
20          makes mention of some targeted mitigating strategies.  
21          But when we say mitigation, we mean something much  
22          broader like maybe you have got a little water in your  
23          diesel building and you just need a pump, like a small  
24          pump to get the water out. That is the kind of things  
25          we are thinking of when we say mitigation, not

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1 necessarily the whole FLEX approach.

2 CHAIR SCHULTZ: Do you mean then  
3 mitigating the result of the hazard, of the event for  
4 the given hazard?

5 MS. SCHROER: So, when we look at total  
6 plant response, we look at one, the protection, so  
7 keeping the water out. And then two, mitigation being  
8 doing something if the water got in. But you still have  
9 your diesel, perhaps. You don't have these assumed  
10 conditions like you do under the FLEX approach. So,  
11 it wouldn't necessarily be a big thing.

12 I mean, and it could actually be FLEX  
13 equipment. That is one of the things that we have  
14 allowed for but it doesn't have to be. It could be  
15 something small. It could be something that plants are  
16 already doing under their design basis.

17 MEMBER CORRADINI: But just to make sure.  
18 So, the answer to Steve's question is yes. It is  
19 mitigation of the hazard.

20 MS. SCHROER: Yes.

21 MEMBER CORRADINI: Okay.

22 MS. SCHROER: Yes. And when we say that  
23 there is a lot of words packed into this one bullet,  
24 so I am going to kind of break it down a little. So,  
25 when we say non-safety related, it means it doesn't have

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1 to meet the single failure criterion, it is not  
2 redundant, and it is not diverse.

3 And Tim Reed kind of talked about this this  
4 morning. Not this but kind of a similar concept. He  
5 said we don't want SAMGs to be safety-significant  
6 because if they are safety-significant, it means we are  
7 in a bad place already.

8 And so that is kind of how I think about  
9 this. We don't want FLEX to become safety significant  
10 in a flooding event because that means we are in a bad  
11 place already.

12 Then moving on to the next bolded bullet,  
13 without the systematic integrated assessment, we  
14 cannot understand the impact of the reevaluated flood  
15 hazard on plant safety. So, the way the approach is  
16 in the white paper right now is it says you don't need  
17 to figure out what happens at your plant because you  
18 have FLEX and that should take care of it or you have  
19 these targeted mitigating strategy.

20 And with the integrated assessment, the  
21 first approach is to figure out what happens to your  
22 plant in a flood event and then see how your plant  
23 responds, so you can really develop specific strategies  
24 for that flood.

25 Without the integrated assessment, you

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1 won't be able to understand the potential  
2 vulnerabilities. So, the integrated assessment, I  
3 know several of you are familiar with PRA and those  
4 built on PRA tools and concepts. So, I like to think  
5 of this as kind of a WASH-1400 we didn't think small  
6 break LOCAs would be a big deal. We didn't know until  
7 we did the analysis. And similarly, we don't know what  
8 could potentially be our vulnerability at a plant  
9 without doing the assessment of the flood.

10 Without the integrated assessment, we  
11 won't be able to determine whether protection is  
12 adequate. And this I am going to veer off a little and  
13 this next piece is my personal view. I am not really  
14 sure that we would be able to understand whether  
15 mitigation is adequate, since the current evaluation  
16 in criteria for FLEX is feasible, it doesn't include  
17 reliability of the plans. And so, that is something  
18 that we really emphasized in the integrated assessment  
19 and the plant response would be both feasible and  
20 reliable.

21 Without the systematic integrated  
22 assessment, we would not be able identify safety  
23 enhancements and determine their significance. If you  
24 don't look to see if there could be any, then you won't  
25 be able to identify them.

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1           For example, something like this, with  
2           those discussed this morning is maybe you can just put  
3           another foot of sand bags around your diesels to be okay  
4           during a flood event. But through the white paper  
5           approach, there really isn't a path for that. And  
6           perhaps after the discussion this morning, that will  
7           be added.

8           And then I think most importantly without  
9           the systematic integrated assessment, we won't be able  
10          to gather enough information to support a decision to  
11          modify suspend or revoke a license. When we issued the  
12          50.54(f) letter to implement recommendation 2.1, the  
13          purpose of that letter was to gather information to be  
14          able to modify, suspend or revoke a license, if  
15          necessary. You know, obviously, this wouldn't be  
16          necessary in all cases.

17          And without the integrated assessment, you  
18          are losing a lot of that information. And I will talk  
19          about that a little bit more on the next slide as well.

20          And finally, the staff doesn't have  
21          confidence in the undefined approach advocated by the  
22          white paper. It seems to rely on an unspecified staff  
23          process to initiate new regulatory actions. And it is  
24          really not clear what that would be and how you would  
25          have enough information to make that decision.

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1           Another thing that Tim Reed mentioned this  
2 morning that if we don't have information to make a  
3 regulatory action, then we are not going to. So, if  
4 you eliminate all the information that you would gather  
5 as part of the integrated assessment, how would you have  
6 enough information to initiate some sort of new  
7 regulatory action? And if you were to initiate a new  
8 regulatory action, 1) what would that be; and 2) it  
9 wouldn't be necessary if you kept the integrated  
10 assessment that currently is required.

11           And this is also -- so I feel like I am going  
12 to say this is a big one. These are all big ones. But  
13 the white paper approach assumes that the NRC already  
14 knows which plants will require additional action. If  
15 you will look on page 2 of enclosure 1 of the white  
16 paper, it says the NRC staff does not expect the  
17 reevaluated flood hazard for most plants to affect the  
18 design-basis flood against which safety-related SSCs  
19 would need to be protected.

20           And so this is already presupposing. Now,  
21 we know what is going to happen with the flood. And  
22 in fact, we have never assessed it or evaluated it  
23 systematically. So, how can we make those  
24 assumptions? And I think that some would argue in some  
25 cases we already do know that there will need to be some

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1 sort of action. So, it is not clear why that is the  
2 assumption for the white paper.

3 Are there any questions on this slide  
4 before I move to the next slide?

5 MEMBER CORRADINI: I guess maybe I  
6 misunderstood but let me say it to make sure, just to  
7 clarify.

8 So, you are saying that the COMSECY or the  
9 draft COMSECY essentially excuses the completion of the  
10 1054-3.1 evaluation? That is what I am --

11 MS. SCHROER: Absolutely. And that is  
12 one thing that I don't think was clear this morning.  
13 It was the white paper was discussed as if the only  
14 intent was to make sure that mitigating strategies met  
15 the reevaluated hazard. And that is actually  
16 something that we agree with. We agree that FLEX  
17 should be able to meet the reevaluated hazard.

18 What we don't agree with is elimination of  
19 the integrated assessment, which is what the white  
20 paper approach proposes.

21 MEMBER CORRADINI: So, just one  
22 follow-on. So, certainly -- integrated -- systematic  
23 integrated assessment. Is that not correct?

24 MS. SCHROER: Only one. But certain  
25 plans have started but it looks like those will be

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1 deferred.

2 MEMBER SKILLMAN: I would like to get  
3 educated on why a plant can't screen out. There are  
4 several plants that are hundreds of feet above nearby  
5 water.

6 MS. SCHROER: Oh, right. Yes. So, when  
7 I was saying that plants wouldn't screen out, what was  
8 said this morning was that if a plant is protected to  
9 the new hazard, that they could screen it out. And that  
10 is not correct.

11 If the new hazard doesn't exceed their  
12 design basis event, they don't have to do anything.  
13 But let's say it turns out their new hazard is five feet  
14 higher and they say okay, we are going to build a flood  
15 wall around the whole plant five feet high, we are  
16 protected, we can screen it out. We don't have to look  
17 at plant response at all.

18 And while it happened under the integrated  
19 assessment, we would say well, we want to look at that  
20 flood loss. We want to make sure that is reliable.  
21 So, that is what I meant.

22 MEMBER RICCARDELLA: I thought I heard  
23 that it could screen it out from the mitigating action  
24 for beyond design basis events. I didn't hear that you  
25 screened it out from a 2.1 evaluation.

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1 MS. SCHROER: Well, I think the white  
2 paper would remove the 2.1 evaluation. So, if you were  
3 screening it out from the mitigating strategies under  
4 the white paper, there wouldn't be a 2.1 evaluation for  
5 it to be evaluated under.

6 The only thing that would --

7 MEMBER RICCARDELLA: If I make something  
8 a design basis event, then I don't have to mitigate  
9 against it because it is a beyond design basis event.  
10 I thought that is all I heard this morning.

11 MR. MITMAN: So, under the current 2.1  
12 rule, if a flood hazard goes off, then there is  
13 requirement to do the integrated assessment. The  
14 plant has to go in and look at things.

15 Now, if the plant remains a dry site, even  
16 though the hazard has gone off, it should be a quick  
17 and easy integrated assessment. It is anticipated to  
18 not be time consuming or expensive to do but they have  
19 to do that. And then that information will come into  
20 the Agency and the Agency would make a decision based  
21 on that, as to whether to modify the license or not.

22 If the new hazard goes above the current  
23 protection, then it gets more complicated and more  
24 difficult. So, you have got a flood wall that is four  
25 feet high. The new hazard goes up two feet and it goes

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1 a foot over the wall. Now, it becomes much more  
2 complicated and now the consequences of that new flood  
3 hazard could, for instance, say we will do ECCS.

4 And now that information will come in.  
5 The licensee would do an integrated assessment. They  
6 would explain why you have added appropriate measures  
7 to protect the core and they would submit that. And  
8 then the Agency would look at that and decide whether  
9 to modify or suspend the license.

10 That whole process, as we understand it,  
11 is not going to be done if the white paper COMSECY goes  
12 forward. They will simply say, under all these  
13 scenarios, you will have the FLEX mitigating  
14 strategies. You don't need to do anything else.

15 MR. SEE: There is additional information  
16 in what is called the trigger letter. It basically  
17 lines out the approach, the different scenarios that  
18 are postulated and kind of covers what Jeff just  
19 summarized. So, if you are interested in that  
20 information.

21 CHAIR SCHULTZ: Ken, what is that related  
22 to, this trigger letter?

23 MR. SEE: The trigger conditions for  
24 performing the integrated assessment. It was signed  
25 out by Dave Skeen December 3, 2012, ML12326A912.

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1 MS. SCHROER: Any other questions on this  
2 slide?

3 MEMBER BROWN: Trigger letter. You said  
4 the trigger letter was lined out. I am trying to  
5 connect the trigger letter to --

6 MR. SEE: The trigger letter provides  
7 guidances for when and how to perform the integrated  
8 assessment.

9 MEMBER BROWN: Okay. The details, in  
10 other words.

11 MR. SEE: There is four scenarios that are  
12 outlined here. Scenario 1 is the reevaluated hazard  
13 is bounded by the design basis. You don't have to do  
14 anything. You're good.

15 Scenario 2 is then your local intense  
16 precipitation value exceeds its design basis. You  
17 trigger an integrated assessment that it is a low level  
18 of effort, is the way I like to describe it.

19 And then there is a scenario 3 which is  
20 called all permanent and passive flood protection.  
21 And the scenario I use here is say a berm. So, if you  
22 have a berm that is five-foot tall, your design basis  
23 flood was three feet previously, your reevaluated  
24 hazard goes up to four feet. So, you still have margin  
25 on your berm.

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1                   What you would have to do under the  
2                   integrated assessment is just demonstrate that that  
3                   berm can still handle that flood. It has gone up a  
4                   foot, do some stability geotechnical work to show that  
5                   berm is good and you are done. It is not a large level  
6                   of effort. But if it goes up and it goes above your  
7                   berm, then the level goes up and it gets a little  
8                   complex.

9                   And then scenario 4 is when you just do a  
10                  full integrated assessment. That is the more complex  
11                  one.

12                  So, it gives industry some more guidance  
13                  as to that event.

14                  MR. PATTERSON: Let me point out the  
15                  mitigating strategies order still applies.

16                  MR. SEE: Yes.

17                  MR. PATTERSON: The rule will still apply.  
18                  So, we are not removing any mitigating strategies just  
19                  because you are still within your design.

20                  MEMBER CORRADINI: But just again a  
21                  clarification. If I understand, the group's main  
22                  point is is that you won't have the knowledge of the  
23                  integrated assessment, even though you have moved  
24                  forward with the rule.

25                  MS. SCHROER: That is correct.

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1 MR. PATTERSON: That is correct.

2 MEMBER CORRADINI: So, you want the full  
3 knowledge of whatever that turns out to be.

4 MR. SEE: Exactly. There was a lot of  
5 discussion here this morning about having the tools in  
6 the toolbox. To me, the integrated assessment will  
7 help ensure that I have got the right tools and it will  
8 help me use those tools in a more effective manner.

9 MS. SCHROER: And I think if you will look  
10 back at slide 2, concern number eight is that the  
11 current white paper fails to distinguish between the  
12 intended purpose of the integrated assessment and  
13 activities for mitigating strategies and does not  
14 recognize the difference between guidance associated  
15 with the two.

16 So, if you want us to speak to more detail  
17 in that.

18 MEMBER CORRADINI: I get it fine.

19 MR. MITMAN: One clarification. The  
20 concerns that we are expressing today are against the  
21 white paper COMSECY. We haven't looked at the rule for  
22 the language in the rule. You mentioned the rule and  
23 we really haven't started to think about the rule.

24 MEMBER CORRADINI: No, no, but I just  
25 wanted to make sure I understood your clarification of

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1       what you felt was missing.

2                   MS. SCHROER: Any other questions on this  
3       slide?

4                   Okay, moving on to slide 4. Another  
5       concern that we had with the white paper is that the  
6       justifications are what we have called here  
7       questionable. The justifications for the white paper  
8       approach include this assumed effectiveness. And  
9       although we have assumed only under this first  
10      sub-bullet, I would say that assumed applies to all of  
11      the bullets.

12                  The efficiency and resources, industry  
13      consensus, and I think after the discussion this  
14      morning that NEI gave about preferring to have a  
15      protection option maybe conflicts with the industry  
16      consensus that is presented in the white paper, and then  
17      time frame.

18                  And these justifications are, I would say,  
19      inconsistent with the way we do business at the NRC.  
20      They have neither technical nor safety basis. It is  
21      all based on schedule and efficiencies. And we would  
22      say that this is inconsistent with a culture  
23      emphasizing safety over competing goals.

24                  Additionally, this approach may be  
25      inconsistent with adequate protection requirements.

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1       So, currently, regulatory actions and processes have  
2       been subsumed by the R2.1 I don't know what it is --  
3       it is a whole project and may need to be revisited. So,  
4       basically what happened is we had some activities that  
5       were ongoing with flooding and when Recommendation 2.1  
6       implementation started, we said we will take care of  
7       that under Recommendation 2.1. And now if we are  
8       getting rid of this whole process with the integrated  
9       assessment, it is not really clear. Those would have  
10      to be kind of restarted, I guess.

11               And there was some discussion this morning  
12      about cost-benefit. But for adequate protection  
13      issues, as I think Dr. Bley said, we don't have to  
14      consider cost benefit.

15               MEMBER BROWN: Don't have to or not  
16      permitted to?

17               MS. SCHROER: Not permitted.

18               MEMBER BROWN: Different set of words.

19               MS. SCHROER: Yes, thank you. And for  
20      flooding issues, licensees have not shown adequate  
21      protection for flooding at some sites. And that was  
22      the whole intent of the R2.1 process was to determine  
23      whether the NRC should modify, revoke, or suspend a  
24      license -- modify, amend, or suspend. Too many  
25      suspends.

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1                   And so without going through this entire  
2 process, it is not clear that we will be in alignment  
3 with our adequate protection requirements.

4                   And the claimed efficiency under the white  
5 paper approach comes at a significant cost. On page  
6 four of the white paper, it states that the planned  
7 approach reduces the level of information to be  
8 submitted by licensees and the assessments will focus  
9 on mitigating strategies, instead of more varied  
10 enhancements to protect against a range of flooding  
11 conditions.

12                  A broader assessment could, for example,  
13 identify protective measures for equipment important  
14 to safety against some flooding scenarios and,  
15 therefore, reduce the reliance on mitigating  
16 strategies to address such events.

17                  So, the white paper, itself, states that  
18 we are going to be reducing the amount of information  
19 that we get, due to the elimination of the integrated  
20 assessment.

21                  Are there any questions on this slide?

22                  Okay, slide 5, the integrated assessment.  
23 If the white paper approach were modified or  
24 disapproved or something, if we kept the integrated  
25 assessment we would have a systematic review of all

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1 plants with increased flooding hazards and we will know  
2 the extent of flooding issues at plants with known  
3 issues; the total number of plans that may have issue,  
4 including plants not yet identified. I think people  
5 that have been working in flooding for a while you know  
6 you kind of have a handful of plants in your mind that  
7 you think oh, that is a flooding plant and that is a  
8 flooding plant. There might be other plants that we  
9 don't know about because we haven't done this detailed  
10 assessment. And with the integrated assessment, we  
11 would be able to identify those plants.

12 We will know whether all plants can  
13 demonstrate adequate protection under flooding  
14 scenarios and we will know whether there are efficient  
15 and effective flood protection measures that are cost  
16 justified substantial safety enhancements. So,  
17 essentially, we would have information to pursue a back  
18 fit, if necessary.

19 And oh, I've jumped to my last bullet  
20 without even knowing it. With the integrated  
21 assessment, we will know information needed to support  
22 regulatory decisions. And I think this is really --  
23 the white paper approach, I think we are kind of left  
24 in the dark about a lot of these things and we just  
25 assume everything is fine or that the mitigating

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1 strategies will take care of a lot of these things but  
2 we won't really know. And with the integrated  
3 assessment in doing a systematic review, we will be able  
4 to have confidence in the protection at sites under  
5 flooding scenarios.

6 Any questions on this slide?

7 CHAIR SCHULTZ: Hearing none, proceed to  
8 slide 6.

9 MS. SCHROER: All right. So now I am  
10 going to turn it over to Jeff Mitman and he is going  
11 to talk about a couple of plant examples, just to give  
12 you a feel of what does this actually mean. Jeff?

13 MR. MITMAN: Okay, I'm Jeff. Go over to  
14 slide 7. So, the next three slides are three plants.  
15 They are actual plants.

16 CHAIR SCHULTZ: Louder, please, Jeff.

17 MR. MITMAN: Louder? Okay.

18 The next three slides are talking about  
19 three actual plants. They are not named because the  
20 point is to use illustrations and not to pick on any  
21 particular plant.

22 So, the first plant, PWR, under the current  
23 licensing basis, I have normalized all the water levels  
24 so that the normal water level is zero feet. So, site  
25 grades, 13 feet above that. The 100-year flood per the

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1 FSAR is about 10.3 feet and the design basis flood is  
2 a normalized elevation of 23 feet.

3 So, under the current rules and licensing  
4 basis, the plant has a full set of ECCS electrical power  
5 systems to protect itself against the design basis  
6 flood.

7 There is new information coming in from the  
8 reevaluated hazard that indicates that the flood hazard  
9 goes up by tens of feet, more than 20 feet. And this  
10 will disable the ECCS, the offsite power supplies, and  
11 the on-site power supplies.

12 MEMBER BROWN: Is this a reevaluated  
13 hazard at that plant?

14 MR. MITMAN: It is a reevaluated hazard at  
15 that plant.

16 MEMBER BROWN: Well, I was looking at the  
17 parenthesis, based on present-day licensing criteria.  
18 So, if you were looking at it fresh today --

19 MR. MITMAN: If you were trying to license  
20 the plant today under the current licensing --

21 MEMBER BROWN: It wouldn't meet the twin  
22 feed.

23 MR. MITMAN: Right.

24 MEMBER BROWN: I'm sorry to interrupt you.

25 MR. MITMAN: The flood would go up by more

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1 than 20 feet.

2 MEMBER BROWN: Okay.

3 MEMBER BLEY: And this was the  
4 reevaluation done by the plant.

5 MS. SCHROER: Yes.

6 MR. MITMAN: By a federal agency. I am  
7 being a little cagy here because for this particular  
8 plant there is some sensitive information involved.  
9 And so, I need to be a little bit -- I can't say  
10 everything I would like to say.

11 MEMBER BLEY: Okay.

12 MR. SEE: This is part of the R2.1 effort.

13 MEMBER RICCARDELLA: So, for this plant,  
14 the 2.1 effort is done, has been completed?

15 MR. SEE: The flood hazard is not  
16 completely done but the design basis mechanism has been  
17 done.

18 MR. MITMAN: So, the flood hazard is up by  
19 more than 20 feet. It disables everything on the site.  
20 Okay? So, of course, they still have FLEX equipment,  
21 as is appropriate and is another layer of defense but  
22 it raises questions. Are the mitigating strategies  
23 under FLEX, under the mitigating strategies, are they  
24 appropriate?

25 All right, the next one. Should we really

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1 be talking about efficiency and effective protection  
2 options? Should we consider changing the design or  
3 licensing basis? Is there an adequate protection  
4 issue here?

5 So, under the current regime, where you do  
6 a 2.1 and an integrated assessment, the hazard has gone  
7 up. They are required to do an integrated assessment.  
8 They will come in and talk about how they are going to  
9 compensate for this new hazard, what they are going to  
10 do and why they are okay.

11 The Agency now has the opportunity to look  
12 at what they are planning, decide whether the license  
13 needs to be revised, suspended or revoked, and can move  
14 forward.

15 Under the COMSECY white paper proposal,  
16 all that discussion will stop because there is an  
17 assumption that the mitigating strategies are  
18 sufficient. And so we ask the question. Do we really  
19 want to just jump there without looking a little bit  
20 harder based on this new hazard information?

21 MEMBER CORRADINI: So, can I just get a  
22 clarification? So, just the numerical values. The  
23 100-year flood was 10.3 and now the 100-year flood is  
24 23. Is that what am I understanding?

25 MR. SEE: They are higher than that.

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1 MEMBER CORRADINI: More than 23.

2 MR. MITMAN: The 100-year flood, which is  
3 not the design basis, okay, the 100-year flood, one of  
4 the problems we have got coming into is frequencies.  
5 Okay? In hydrology space, it is really hard to get  
6 frequencies out of the little bit of flood information  
7 we have. We can get a 100-year flood data or a flood  
8 frequency. You can extrapolate. You can pull that  
9 off of the data. When you start to get out beyond 1,000  
10 years, the hydrology community gets really  
11 uncomfortable with trying to come up with frequencies.

12 So, typically in PRA space, we are very  
13 comfortable talking about one in 10,000, one in  
14 100,000, one in a million. We are comfortable with  
15 that. The hydrology community is not. So, what you  
16 will hear when you talk about floods is that people  
17 don't want to extrapolate out the flood groups.

18 But put in here is simply a known point to  
19 give a little bit of perspective on what the frequencies  
20 are. Now, that is not to imply that the design basis  
21 flood is a 100-year flood. It is not. It is something  
22 smaller. The design basis flood has something at a  
23 lower frequency than a 100-year.

24 CHAIR SCHULTZ: But here it is higher, is  
25 it not?

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1 MR. MITMAN: Pardon me?

2 CHAIR SCHULTZ: I don't want to get into  
3 the details specifically. This is an example. You  
4 have a 100-year flood normalized elevation of 10.3 feet  
5 and you have indicated the design-basis flood is  
6 normalized to 23 feet.

7 MR. MITMAN: So, it is significantly less  
8 than that, one in a hundred years.

9 MR. SEE: Yes, significantly less  
10 probable.

11 MEMBER REMPE: Okay, so we evaluated  
12 hazards. Is that a design basis flood that would be  
13 20 feet greater than the prior design basis flood?  
14 What do you mean by reevaluated hazard?

15 MS. SCHROER: So, as part of the  
16 Recommendation 2.1 process, the first step was to  
17 reevaluate the flood, using present-day licensing  
18 criteria. So, if this were a brand new plant being  
19 built, this would be their design basis.

20 MEMBER BROWN: Forty-three feet?

21 MEMBER REMPE: That is what I'm trying to  
22 say.

23 MEMBER BROWN: So, the present design  
24 basis is 23 feet. It would have to be 43 feet.

25 MS. SCHROER: Yes.

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1 MEMBER BROWN: Okay.

2 MR. MITMAN: One of the problems we run  
3 into with the old plant is that what they were designed  
4 and licensed to skip certain things. All right? So,  
5 a lot of the plants, their licensing design basis  
6 doesn't include local intense precipitation. So, it  
7 is not in the design basis right now. Okay?

8 And so, if a plant has that scenario, then  
9 that is new information and the hazard has gone up. And  
10 so that automatically puts them into an integrated  
11 assessment.

12 So, with the old plants, there is just  
13 various mechanisms that are just not covered. A lot  
14 of the plants looked at still water levels and they  
15 didn't take into consideration wave runoff.

16 A lot of the plants have still water level,  
17 they don't take into consideration debris loading.  
18 You know you have a flood. All these trees come down  
19 and it hits your berm. Is your berm good enough to take  
20 the impact from that debris? It is not in the licensing  
21 basis because it wasn't considered back in the late '60s  
22 or early '70s but under current design requirements,  
23 they would have to look at that.

24 These are all the subtleties that you start  
25 to see that come out in the integrated assessment that

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1 just simply get pushed aside by the COMSECY that says  
2 it doesn't matter. They have FLEX.

3 MEMBER BLEY: Let me ask you a couple of  
4 questions because I am a little confused and I didn't  
5 study the COMSECY the way you have. And we have an  
6 earlier draft, which is probably when you wrote all  
7 that.

8 I am kind of where Mike was. I almost need  
9 to be walked through the COMSECY. I'm not sure where  
10 it says you don't need an integrated assessment or  
11 anything else that you assume that the FLEX will work,  
12 no matter what is going on with the flood. And the  
13 stuff we heard this morning, separate from what is in  
14 the COMSECY, the discussions, were that one has to look  
15 at FLEX against a place where you have exceeded the  
16 existing design basis and show that it can work.

17 And what I am hearing is that regardless  
18 of what the reevaluated flood is, the COMSECY says you  
19 don't have to look at anything. FLEX will work. And  
20 I just didn't --

21 MR. MITMAN: You didn't hear what I talked  
22 about this morning?

23 MS. SCHROER: Let me read you a quote from  
24 the COMSECY on page four. It says focusing the phase  
25 2 decision-making on mitigating strategies means that

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1 the integrated assessment in phase 1 is no longer needed  
2 in its current form. Instead, the mitigating  
3 strategies, equipment, and actions will be confirmed  
4 against the reevaluated flooding scenario.

5 MEMBER BLEY: Okay, that is different than  
6 what I heard you say out loud. That says it won't exist  
7 in its current form. It doesn't say what form it would  
8 be in. But it says you have to provide some basis to  
9 show that the FLEX would work.

10 MS. SCHROER: And then later on, it says  
11 that the planned approach reduces the level of  
12 information to be submitted. So, and this was actually  
13 one of our concerns.

14 MEMBER BLEY: But it doesn't say how much,  
15 either, does it? So, it is a little vague. It is a  
16 lot vague.

17 MS. SCHROER: And one of our concerns, I  
18 can't remember what number it was.

19 MEMBER BLEY: It doesn't matter.

20 MS. SCHROER: I think it was that it is not  
21 -- the staff didn't think it was clear to the Commission  
22 what they would actually be affirming because what we  
23 have been told is the integrated assessment would be  
24 gone. But then if you read this, you are kind of like,  
25 well.

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1                   MEMBER BLEY: Yes, I understand the first  
2 half of what you just said. It is vague. And it is  
3 not -- well, my interpretation of the words you read  
4 and having read this before isn't that it is gone. It  
5 is somehow controlled in its extent but that is not  
6 defined.

7                   Now, this is one of those Phil was talking  
8 about this morning when you get something this wild,  
9 wildly different from the current design basis, why  
10 wouldn't it be a new design basis? Why wouldn't you  
11 have to go into the new design basis, under which you  
12 would have to do substantial analysis to show that you  
13 were covered.

14                  MEMBER RAY: That leaps to the -- I am only  
15 saying make it more explicit that you must consider the  
16 process. And determine that the better course is  
17 mitigation prevention.

18                  MEMBER CORRADINI: Well, if I just go back  
19 -- I'm sorry, I have forgotten the gentleman at the far  
20 end.

21                  MS. SCHROER: Ken.

22                  MEMBER CORRADINI: Ken, so you had  
23 repeated the four potential categories.

24                  MR. SEE: It's from the trigger letter.

25                  MEMBER CORRADINI: Well, whatever it is

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1 called. This would be in the fourth category where it  
2 says a substantial to, it has got to be evaluated. Have  
3 I got it approximately right?

4 MR. SEE: Yes, you are correct.

5 MS. SCHROER: Using the current guidance.

6 MEMBER CORRADINI: Right.

7 MS. SCHROER: And so one thing that the  
8 COMSECY says is that instead of this integrative  
9 assessment, and I would like to mention that the  
10 guidance that was created to develop an integrated  
11 assessment, JLD-ISG-2012-05, it was created with a  
12 variety of technical expertise, a variety of NRC  
13 offices, and with significant industry and stakeholder  
14 input.

15 So, if we don't use that current form, then  
16 we may need to address, and I am quoting from the COMSECY  
17 here on page 6, we may need to address some specific  
18 flooding scenarios that could significantly damage the  
19 power plant site by developing targeted or  
20 scenario-specific mitigating strategies.

21 So, it is this whole big we might need to  
22 do something maybe if it is significant.

23 MEMBER BLEY: Let me push you a little  
24 further. I think what you said, and I haven't recently  
25 looked at the guidance for doing the integrated

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1       assessment was that there is already substantial  
2       flexibility there, that the assessment only needs to  
3       be done to the extent to demonstrate whatever the issue  
4       is you are trying to look at.

5               MS. SCHROER:   Yeah, so, the integrated  
6       assessment guidance --

7               MEMBER BLEY:   Well, this kind of further  
8       softens it so maybe you don't even need to do that much.

9               MS. SCHROER:   Yes, the current guidance  
10      provides for a graded approach.   So, if you have a cliff  
11      around your site -- well, maybe a wall instead of a  
12      cliff, --

13              MEMBER BLEY:   We get it.   Go ahead.

14              MS. SCHROER:   -- then you can say look, I  
15      have a large wall.   We're good.   But if you say well,  
16      I have a kind of small wall and my reevaluated hazard  
17      is above that, then you would need to do more.   And so  
18      it provides for this graded approach that depending on  
19      what scenario your specific plant finds itself in, it  
20      would have a different level of rigor.

21              And what the COMSECY does is kind of  
22      softens that even more.   And not only softens it but  
23      doesn't provide a clear process by which these would  
24      be evaluated.   In our opinion, we already have that  
25      process.

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1 MR. MITMAN: Now, this particular plant is  
2 on the NRC's radar. And so a lot of people are aware  
3 of the issues, aware of the increased hazard, and aware  
4 of the consequences of the increased hazard. But  
5 without the integrated assessment, it is not  
6 necessarily clear that the Agency will know the  
7 consequences of the increased hazard. And so that is  
8 one of the points that Suzanne made earlier, that  
9 without the integrated assessment, all we will have is  
10 a hazard and won't necessarily have all the information  
11 we need to make sure to understand the significance of  
12 that increased hazard.

13 MS. SCHROER: And I just found --

14 MEMBER RAY: Let me comment that what you  
15 just said was what at least I was intending to try and  
16 say about the mere implication that well, oh yes, we  
17 could do something other than just impose mitigating  
18 strategies. The fact that we don't systematically  
19 require that to be done is the issue that I am trying  
20 to surface for, our awareness. I guess I will put it  
21 that way.

22 MR. PATTERSON: Isn't that precisely what  
23 the purpose of the Near-Term Task Force and other  
24 post-Fukushima activities has been about, have a  
25 systematic method to deal with things that we don't even

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1 know about yet? When a new hazard comes down the pike,  
2 we will have an established methodology for dealing  
3 with it.

4 MS. SCHROER: And I knew that this was in  
5 there somewhere and I just found it. And so I think  
6 it was you, Dr. Bley, who said it wasn't clear that the  
7 integrated assessment would be eliminated. So, if you  
8 go to Enclosure 2 on the first page it says focusing  
9 the flooding reevaluations on the SSCs serving key  
10 safety function within the mitigating strategies  
11 requirements will, in many cases, improve the  
12 efficiency of the NRC's regulatory process by  
13 eliminating the need for a broader assessment of the  
14 plant response, as described in current plans and staff  
15 guidance for integrated assessment.

16 So, it is in there.

17 CHAIR SCHULTZ: But again, it says in many  
18 cases. So, that doesn't --

19 MS. SCHROER: Well, in many cases, it  
20 would improve the efficiency.

21 MEMBER BLEY: What does that mean  
22 eliminating some aspects of it? I think I know what  
23 you guys are saying. And I think I know what others  
24 were trying to craft.

25 MR. MITMAN: In ending the example 1, I

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1 would like to come back and say should we really be  
2 talking about plant efficiencies when, in my mind,  
3 there is a real adequate protection issue here. To me,  
4 it is adequate protection that a flood of this height  
5 -- I'm not even sure that the FLEX strategies will work  
6 under this scenario and how bad this flood gets. That  
7 there will be no place to stage the FLEX equipment if  
8 the flood is so bad.

9 And so why are we talking about  
10 efficiencies when, to me, there is an adequate  
11 protection issue that needs to be addressed first?

12 Now, the Agency, in my opinion, needs to  
13 look at this, decide whether there is an adequate  
14 protection issue. And if there is no adequate  
15 protection issue, then you can go forward on the basis  
16 of efficiencies. But until you address the adequate  
17 protection issue, the court decisions forbid us to look  
18 at monetary basis for doing this.

19 MEMBER BLEY: And they still would.

20 MEMBER RAY: Yes, but aren't you saying  
21 though that we wouldn't know? Because this is such an  
22 egregious example -- let me finish. But the point is,  
23 we wouldn't really systematically know that without the  
24 integrated assessment.

25 MS. SCHROER: Correct.

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1 MR. MITMAN: For each site.

2 MEMBER RAY: For each site.

3 CHAIR SCHULTZ: And that is what I meant,  
4 Jeff, that in terms of efficiency it is eliminating  
5 those sites that can be eliminated from --

6 MR. MITMAN: Yes, but the integrated  
7 assessment allows you to do that. If the flood hazard  
8 goes down, you're out. If the flood hazard goes up but  
9 you are still dry, you are pretty much --

10 CHAIR SCHULTZ: Pretty much. That is  
11 what I am --

12 MR. MITMAN: It should be a quick, a  
13 comparatively quick and inexpensive process to show  
14 that you are okay. All right?

15 But when you start to see examples like all  
16 three of these examples, it becomes questionable about  
17 whether it is so easy.

18 MR. SEE: I would like to point out another  
19 document that may inform you. There is a deferment  
20 letter that the Agency has prepared deferring the  
21 integrated assessments. As you are aware, they had two  
22 years. If their design basis flood triggered an  
23 integrated assessment, the licensees were required to  
24 submit their integrated assessments within two years.  
25 The Agency has prepared a deferment letter and I will

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1 give you the ML number for you to look at it. It has  
2 been changing, so it may inform you. I am just going  
3 to give it to you. It is ML14303A465.

4 CHAIR SCHULTZ: When you say the words  
5 have been changing --

6 MR. SEE: Well, it was a suspension  
7 letter, now it is a deferred letter. So, they are still  
8 working it.

9 MS. SCHROER: It is publicly available.

10 CHAIR SCHULTZ: Is this a draft of some  
11 kind or something that has been issued?

12 MR. SEE: It is a draft in my  
13 understanding.

14 MS. SCHROER: No.

15 MR. SEE: Oh, is it out?

16 MS. SCHROER: It hasn't been issued to the  
17 licensees but it has been concurred on within the office  
18 and is publicly available.

19 MR. SEE: Well, it has been discussed with  
20 some licensees, with project managers. I know that.

21 It is just something that would further  
22 inform you as you make your recommendations. And it  
23 is profiled publicly in ADAMS.

24 CHAIR SCHULTZ: Jeff, you mentioned that  
25 in R2.1, now we are looking at the reevaluated hazard.

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1 And that is fully consistent with what is being done  
2 for new plant sites, for a new plant site evaluation.  
3 Is that correct?

4 MR. MITMAN: Yes.

5 MS. SCHROER: Correct.

6 CHAIR SCHULTZ: And then you said that in  
7 the reevaluation this is being done in concert with  
8 other agencies. And at this point in time, even though  
9 the earlier establishment of design basis was done at  
10 least with some understanding of what the 100-year  
11 flood was, and then add margin in some way, shape, or  
12 form.

13 MR. SEE: I think the 100-year statistic  
14 is just that. It is not really raw. I think it is  
15 adding some confusion to our discussion. It is  
16 information but it is not relevant to the point Jeff  
17 was trying to make.

18 MR. MITMAN: The 100-year flood is not the  
19 design basis flood.

20 CHAIR SCHULTZ: I can see that.

21 MR. MITMAN: It was simply put in there to  
22 give some kind of benchmark of frequency, not a very  
23 good one, obviously.

24 CHAIR SCHULTZ: Well, why isn't it --  
25 because the design basis reflects a much higher number.

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1 MR. MITMAN: Right. But I don't know what  
2 the frequency of the design basis flood is.

3 MEMBER RICCARDELLA: We don't have the  
4 information but in the seismic world, we design to ten  
5 to the minus four.

6 CHAIR SCHULTZ: Right.

7 MEMBER RICCARDELLA: So, presumably,  
8 there is some kind of a scaling like that in there but  
9 nobody wants to write down what the probability is.

10 MR. SEE: If you could figure that out, you  
11 would be a wealthy man.

12 MEMBER RICCARDELLA: I'd be what?

13 MR. SEE: A wealthy man.

14 MEMBER RICCARDELLA: I doubt it.

15 MR. MITMAN: There is no frequency on the  
16 design basis flood. The staff, as part of an SDP has  
17 tried to come up with one and we --

18 CHAIR SCHULTZ: That is what I want to  
19 know, what the staff's thinking is.

20 MR. MITMAN: But I don't. If I had a  
21 frequency for it, I would give it to you. But I don't  
22 have it.

23 CHAIR SCHULTZ: Right.

24 MR. MITMAN: And so the 100-year flood  
25 there simply is kind of a mile marker to help a little

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1 bit.

2 MEMBER RICCARDELLA: I was just saying it  
3 is not surprising that the design basis flood would be  
4 greater than the 100-year flood just by parallel.

5 MS. PROHIDA: But it is important to --

6 MEMBER RICCARDELLA: It would be a bigger  
7 flood than the 100-year flood. That doesn't surprise  
8 anybody, does it?

9 CHAIR SCHULTZ: Of course. No, it  
10 doesn't surprise me but then you get into discussions  
11 about well, you have to add in the PMP and the flood  
12 and all of this. And then you get into probability  
13 evaluation and we are not willing to do that.

14 But then you indicated that there is  
15 thinking going on.

16 MR. SEE: The Agency has a probabilistic  
17 flood hazard analysis research project. I think there  
18 is a paper going through concurrence as we speak. It  
19 is a five-year program. So, we are moving in that  
20 direction. We are just not there yet.

21 MS. PROHIDA: But it is really important  
22 to note that hazard frequency information is not needed  
23 to perform the integrated assessment. Okay?

24 The integrated assessment uses  
25 probabilistic concepts but you don't need the hazard

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1 frequency information to complete the integrated  
2 assessment. I think that is very important to note.

3 CHAIR SCHULTZ: Well in this case, somehow  
4 the 20 feet greater is determined.

5 MS. PROHIDA: Yes.

6 CHAIR SCHULTZ: R2.1 defines the hazard  
7 just without a frequency.

8 MS. PROHIDA: That is correct.

9 MR. SEE: It is a deterministic process  
10 through HMRs and physics base models for a flooding  
11 scenario.

12 MR. MITMAN: Can I go on to example 2?

13 CHAIR SCHULTZ: Sure.

14 MR. MITMAN: All right, going to slide 8.

15 MS. SCHROER: How much time are we looking  
16 at?

17 CHAIR SCHULTZ: Just keep going. We are  
18 relatively open-ended. We will see how the next  
19 presentations go but go ahead, please.

20 MR. MITMAN: So, Plant 2 is an existing  
21 BWR, again, everything is nominalized levels. So, the  
22 normal river level is at zero feet. Site grade is 22.5  
23 feet above that. The original design basis per the  
24 FSAR is a normalized flood level of 17 feet, which the  
25 FSAR comes out and says is a 200-year flood and it is

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1 385,000 cubic feet per second.

2 So for the original design basis, we have  
3 a full set of EECS, diverse, redundant,  
4 single-failure-proof. All this remains available  
5 because the flood is below grade.

6 In the FSAR, however, they talk about,  
7 because of the SEP program, they went back and they  
8 revisited it, and this is in the plant as the current  
9 licensing basis. They revised the flood to 29 feet.  
10 Okay? So, seven feet, six and a half, seven feet above  
11 grade.

12 Now, the next quote comes out of the hazard  
13 report that was submitted recently. "There no  
14 incorporated/exterior or temporary flood protection  
15 features designed to protect the site against a flood  
16 greater than the plant grade elevation." So, what is  
17 the plant to do?

18 Again, this comes out of the hazard report.  
19 The reactor shutdown is followed by a reactor  
20 disassembly and the cavity is flooded up. All station  
21 loads are de-energized and the plant doors are opened.  
22 Again, this is a BWR. So, when they open the plant  
23 doors, they are opening up the secondary containment.  
24 Gasoline driven pumps provide makeup water to the pools  
25 and the reactor.

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1                   So, we have got a BWR that has no ECCS under  
2                   this design basis flood. The flood has gone up. They  
3                   have disassembled the reactor. So, that is one safety  
4                   barrier gone. They have opened up primary  
5                   containment. That is a second safety barrier gone.  
6                   Of course, the deinerted, so we don't have any hydrogen  
7                   capabilities anymore. And now when the flood waters  
8                   come above grade, they open up secondary containment  
9                   and they let water into the reactor building.

10                  Now, the reevaluated hazard comes in and  
11                  the water level goes up some more. So, under the  
12                  current licensing basis, they have a license to operate  
13                  with this strategy that is explained under the current  
14                  licensing basis.

15                  Now, the flood hazard has gone up. We get  
16                  a slightly higher water level at different flows and  
17                  we get back to the same questions. Are mitigating  
18                  strategies appropriate for the reevaluated hazard?  
19                  Are there efficient effective protection options?  
20                  Should we consider changing the design or licensing  
21                  basis? Is this an adequate protection issue?

22                  The integrated assessment, if it were  
23                  allowed to continue and be conducted and completed,  
24                  would address these issues, and it's phase 2 of 2.1  
25                  flooding, we would get the opportunity to decide

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1 whether to revise, or suspend, or revoke the license.

2 MEMBER BLEY: So now we have a shutdown  
3 reactor, pool reactor, with all the water on top of it  
4 but no containment.

5 MR. MITMAN: No reactor. No containment.  
6 No ECCS. And no class 1 --

7 MEMBER BLEY: Well, ECCS might be  
8 irrelevant because you have got all the water sitting  
9 on top of it already. Right? It is sitting there. It  
10 is a pool reactor that is shut down but with no  
11 containment.

12 MS. SCHROER: Well and disassembled as  
13 well.

14 MEMBER BROWN: What do you mean? I was  
15 going to ask you that.

16 MR. MITMAN: They shut down. It is a  
17 long-term flood. So, there is lots of time.

18 MEMBER BROWN: So, they can watch it build  
19 up. Is that what you mean?

20 MR. MITMAN: Yes. It is days to come.  
21 So, there is lots of advance warning. So, they shut  
22 the reactor down. They go to cold shutdown with RHR.  
23 They get to cold shutdown. On a BWR, they take the  
24 shield plugs off of the top. They take the dry well  
25 head off. They take the reactor vessel head off and

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1       they flood the cavity like they were going into a  
2       refueling outage. And then they sit there and to keep  
3       the core cool, they use a FLEX-type pump to pump reactor  
4       into the reactor vessel cavity. And that is the way  
5       they want to deal with a design basis event, a design  
6       basis event that looks like it has the frequency  
7       somewhere around a small LOCA frequency.

8               MEMBER CORRADINI: What did you mean by  
9       that? I don't understand what you mean by that.

10              MR. MITMAN: Again, I can't tell you the  
11       frequency, because I don't know the frequency.

12              MEMBER CORRADINI: All right. Something  
13       like what then? You've compared it to B

14              MR. MITMAN: Under the thousand years.

15              MEMBER CORRADINI: Okay.

16              MR. MITMAN: Now, some people might  
17       probably get really upset by me saying that, but it  
18       could be that. Could be a little bit more frequent than  
19       that, you know.

20              The integrated assessment would allow us  
21       to ask questions about that and go forward and try and  
22       understand that better.

23              Under the COMSECY approach, simply it's  
24       like they've got a strategy, they've got a FLEX system,  
25       what more do you need?

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1 MEMBER BLEY: I'm just curious. Has it  
2 been this way for a long time?

3 MR. MITMAN: Yes, since the B the original  
4 design B

5 MEMBER BLEY: I mean, when did they figure  
6 out that it might be as high as 29 feet? That was some  
7 time ago.

8 MR. MITMAN: I want to say in the SEP program  
9 probably in the early 80s.

10 MEMBER BLEY: Okay. And this strategy was  
11 laid out at that time?

12 MR. MITMAN: Yes.

13 MEMBER BLEY: Okay.

14 CHAIRMAN SCHULTZ: Well, you said it was  
15 slowly developing, but apparently not slowly enough for  
16 them to unload to the fuel pool.

17 MR. MITMAN: That's not part of their  
18 strategy.

19 CHAIRMAN SCHULTZ: That they have  
20 described.

21 MR. MITMAN: There are B

22 CHAIRMAN SCHULTZ: They have described.

23 MR. MITMAN: There are procedures in place  
24 today to do all this. And they've been in place for  
25 a while, okay.

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1           And so, those procedures are there, the  
2           Agency knows the procedures are there, they're  
3           inspectible. This is their planned strategy if they  
4           need B if they are going to face a flood of above grade.

5           MEMBER BLEY: This has been sitting there  
6           and this is the way we do business from the past.

7           MR. MITMAN: It is.

8           MEMBER BLEY: I never saw one like this.

9           MR. MITMAN: But the hazard has gone up,  
10          okay. And it, to me, the whole purpose of NTF was to  
11          say based on Fukushima Daiichi, maybe we should go back  
12          and look at some of these external events a little bit  
13          more.

14          And so, when you go look at it, this is what  
15          comes out of the review so far is these types of B this  
16          scenario.

17          And this is not unique. This is not the  
18          only BWR that has a strategy like this.

19          MR. SEE: And so, Jeff, they would utilize  
20          this procedure for floods less than the PMF.

21          MR. MITMAN: Yes. So, the PMF is 29 feet.  
22          Any B

23          MS. SCHROER: And PMF is probable maximum  
24          flood, for those who might not be familiar.

25          MR. MITMAN: All right. For any flood that

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1 goes above grade, which is the 22 and a half foot, this  
2 is their strategy.

3 MEMBER SKILLMAN: How could they know they  
4 have as much time as they have assumed in order to make  
5 provision for this strategy?

6 MR. SEE: Good question. It's a postulated  
7 scenario where the precipitation falls in a particular  
8 sequence and a particular location. And then it takes  
9 time, travel time to come through the rivers and reach  
10 the site.

11 So, many plants have postulated these  
12 scenarios where you'll have a three-day event that's  
13 40 to 50 percent over PMP, three days of no rain, and  
14 then three days of the main PMP. So, you have a  
15 nine-day sequence.

16 And they will take this storm and move it  
17 around the watershed and try to identify what they call  
18 the critical location, which will give them the highest  
19 flood.

20 MEMBER SKILLMAN: Okay. Thank you.

21 CHAIRMAN SCHULTZ: All right, Jeff. Next  
22 scenario. I think you said you had three; is that  
23 correct?

24 MR. MITMAN: Three, yes. Plant 3 is on  
25 Slide 9. It's another BWR on a river, okay.

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1 Current licensing basis, again,  
2 normalized water level is zero feet. Site grade is 25  
3 feet above that. I probably shouldn't have put this  
4 in, but that's nine feet above the thousand-year flood.

5 All right. PMF under the current  
6 licensing basis is normalized 34 feet. Current  
7 analysis is that the flood will take 12 days to develop.  
8 So, lots of lead time. And that floodwaters will  
9 remain onsite for 11 days after they come onsite.

10 MEMBER BLEY: You don't have the  
11 design-basis up here. This is the B

12 MR. MITMAN: The PMF is the design-basis.

13 MEMBER BLEY: Okay.

14 MR. MITMAN: So, that's the 34 feet. The  
15 licensee flood protection procedure requires they shut  
16 down the plant, they construct a ring levee to protect  
17 the plant.

18 If the construction of the levee is not  
19 completed or the levee fails, neither of which are low  
20 probability events, station blackout will occur. So,  
21 the backup to that is to run RCIC without dc power.

22 So, that's the licensing basis today.  
23 That's on the books. That's their NRC-approved,  
24 AEC/agency-approved approach to the design-basis flow.

25 Okay. So, they go out and they redo the

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1 hazard and the PMF goes up and we're back to the same  
2 set of questions.

3 Now, is it really appropriate to just say,  
4 hey, we'll go buy two or three commercial grade pumps,  
5 store them in an appropriate condition and use them to  
6 deal with this event if it happens?

7 There are three examples. There's  
8 others, okay. There's some talk in the COMSECY that  
9 for unusual events they can use the targeted B a  
10 targeted assessment, you know, how many of these are  
11 there out there?

12 I probably can come up with five or six,  
13 all right, but I don't know how many others are out  
14 there.

15 MEMBER BLEY: Do they give a definition for  
16 this targeted assessment?

17 MS. SCHROER: That's another one of our  
18 concerns is that it's not clear what the targeted  
19 scenario-specific mitigating strategies would be.

20 MR. MITMAN: And then once you find those,  
21 it doesn't give you any direction on how you do any kind  
22 of a targeted assessment.

23 MS. SCHROER: Or how you ask for that  
24 information, even.

25 MR. MITMAN: One of the arguments that we've

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1 heard raised over the last week or so is, well, there's  
2 nothing under the current regulatory regime that would  
3 prevent us from using the normal processes to revisit  
4 these three plants or any other plants that might have  
5 these types of scenarios.

6 And that's perfectly true, but this is B  
7 Plants 2 and 3 is not new information and we haven't  
8 revisited them over the past years. And it's not clear  
9 that they would be revisited.

10 MEMBER BLEY: Just for me to understand  
11 this, if, in fact, when they did their B the seismic  
12 reevaluation this one and Number 2, it didn't go up,  
13 but it stayed at the high level that was already high  
14 enough they had to take these special measures B

15 CHAIRMAN SCHULTZ: The flood evaluation,  
16 yes.

17 MEMBER BLEY: -- it would not have  
18 triggered an integrated assessment. Would not have.

19 MR. MITMAN: It would not have. If the  
20 hazard had gone B

21 MEMBER BLEY: So, the integrated assessment  
22 wouldn't have helped us here, because it wouldn't have  
23 been triggered.

24 MR. MITMAN: That's true. If the hazard  
25 had gone down by half an inch, they would not have done

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1 an integrated assessment and I couldn't use these B  
2 those two plants as examples.

3 MR. SEE: The staff weren't happy about  
4 that, by the way. But, you know, you have to make  
5 compromises.

6 MEMBER BLEY: The trigger letter that you  
7 write to us, is that the thing that set up the criteria  
8 for how you do integrated assessments, or it's not  
9 related?

10 MR. SEE: It is related. Sue, do you want  
11 to take it?

12 MEMBER BLEY: I mean, we're going to see  
13 that, but we haven't seen it yet.

14 MS. SCHROER: The trigger letter says these  
15 are the conditions by which you have to do an integrated  
16 assessment. And then there's the integrated  
17 assessment ISG which says, okay, if you've triggered  
18 one, this is how you do it.

19 MEMBER BLEY: Okay, against those four  
20 categories.

21 MR. SEE: The trigger letter is a clarifying  
22 letter that, you know, tells you when you trigger one,  
23 it adds some clarifications as to what I would call the  
24 level of effort.

25 MS. SCHROER: Right.

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1 MEMBER BLEY: Clarifies the ISG.

2 MR. SEE: Yes.

3 MEMBER BLEY: Okay. Thanks. That's what  
4 I didn't quite have how those things fit together.

5 CHAIRMAN SCHULTZ: Okay, Suzanne. Do you  
6 have additional slides for the presentation? You said  
7 there were five, and then the examples.

8 MS. SCHROER: We have B

9 CHAIRMAN SCHULTZ: I know you have backup  
10 slides.

11 MS. SCHROER: Yeah, we do have slides that  
12 go over all 12 concerns.

13 CHAIRMAN SCHULTZ: I'll poll the members of  
14 the Committee to see if they want to follow up on any  
15 of the first slides' items besides the ones we've  
16 discussed or other questions that you might have.

17 MEMBER RICCARDELLA: Seeking what might be  
18 middle ground here, would the group B seems like this  
19 integrated assessment is the real sore point.

20 Would the group be comfortable if the  
21 requirements came out that while you needed to do an  
22 integrated assessment, but that assessment could  
23 include the FLEX mitigating strategy equipment?

24 MS. SCHROER: That's what the current  
25 guidance says. So, right now the current guidance for

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1 the integrated assessment says if you don't have out  
2 of B well, that's B if you don't have protection for  
3 the flood, the reevaluated flood hazard, and you do  
4 mitigate the event, you can credit your FLEX strategies  
5 already in place.

6 So, the integrated assessment guidance  
7 that's currently on the books and has been for a couple  
8 years, already has that kind of language.

9 CHAIRMAN SCHULTZ: No, no, no. But to go  
10 back to Pete's comment, though, that would, I think,  
11 match up with what you said.

12 The problem is that the systematic  
13 assessment is not being required by the COMSECY.

14 MS. SCHROER: Right.

15 MEMBER RICCARDELLA: You know, my  
16 understanding is about, you know, from what I heard from  
17 industry is that they intend to do mechanistic  
18 assessments of these 2.1 reevaluated hazards.

19 Now, you know, and the key difference they  
20 were making was mechanistic versus non-mechanistic.  
21 In other words, currently the FLEX are based on a  
22 non-mechanistic assumption that you lose power and you  
23 lose access to your ultimate heat sink.

24 And as they get into considering these new  
25 hazards, they're saying, well, we're going to consider

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1       them, but we're going to consider them in a mechanistic  
2       fashion.

3               And, you know, to me, that almost sounds  
4       like at least B I don't know exactly what's in an  
5       integrated assessment, but they are doing an assessment  
6       of the specific hazard.

7               MS. SCHROER: I think it's a little  
8       different. So, right now the order EA-12-049  
9       mitigating strategies is for an undefined event. And  
10      I could be totally wrong and I'm going to interpret  
11      industry slides. So, maybe this is a bad path, but I'm  
12      already on it.

13              And what industry seems to say is that they  
14      would instead of having this broad, you know,  
15      mitigating strategies, they would look at  
16      flood-specific mitigating strategies.

17              And I guess to understand maybe the nuance,  
18      so the purpose of the R21 hazard was to look at what  
19      would be a design-basis event now.

20              So, it wasn't to look at, you know, this  
21      really bad day. It was to look at what could reasonably  
22      happen at your site.

23              And the purpose of the mitigating  
24      strategies was, okay, you have this really bad day and  
25      something unknown has happened. And so, I think

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1       there's a little different perspective there.

2               So, if you're looking at it as this could  
3       happen and having, you know, some unknown frequency,  
4       but it's a, you know, probable maximum flood is  
5       probable, you know, that's a little different slant  
6       than assuming that it's just this unknown, you know,  
7       very rare bad day.

8               MEMBER RICCARDELLA: I'm just wondering if  
9       we're not necessarily that far apart between what the  
10      industry intends to do, which is some form of an  
11      evaluation of a specific event, but just take into  
12      account the FLEX equipment in addition to their  
13      design-basis when they evaluate that.

14              Maybe they need to, you know, maybe you'd  
15      need to have some requirements that would increase the  
16      level of rigor in that evaluation.

17              MR. SEE: The amount of information that  
18      they would be missing, there's an information gap  
19      between the approaches, is the big issue, I think, for  
20      us.

21              The mitigating strategies is based upon a  
22      set of assumptions. You've had a bad day. Whereas if  
23      you do the integrated assessment, you're going to be  
24      taking actions based upon more information and, you  
25      know, smarter actions, cheaper actions, potentially,

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1       you know.   This has B

2                   MS. SCHROER: And also specifically looking  
3       at how the flood would affect your plant.   And you  
4       wouldn't make this assumption that you're just going  
5       to let the water in and then what's the best way to get  
6       it out, but you would be really looking at what specific  
7       impacts it would have on your plant.

8                   MEMBER BALLINGER: What I thought I heard  
9       was something similar to what Pete thinks he heard, and  
10      that is they're going to do the 049 stuff and that  
11      establishes a baseline.

12                   Then we're going to go look at reevaluated  
13      hazard.   In this case, flood.   And they're going to  
14      evaluate that.

15                   Now, they didn't say B I didn't hear them  
16      say specifically what they were going to do as part of  
17      that evaluation.

18                   MR. SEE: Yes, they didn't use the words  
19      "integrated assessment."

20                   MEMBER BALLINGER: They didn't use the word  
21      "integrated assessment."

22                   MR. SEE: But it might not be that far from  
23      B

24                   MEMBER BALLINGER: But, again, it would --  
25      I would hope that it would B the kind of evaluation,

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1 the kind of analysis they would have to do would depend  
2 on when they got into the flood analysis, what the  
3 answer came out to.

4 Am I doing that wrong?

5 MEMBER RAY: I think the issue of how this  
6 proceeds on the front end whether it's an integrated  
7 assessment or something short of that, is where we need  
8 to focus our attention.

9 Don't forget, though, the adequate  
10 protection milestone which is if the integrated  
11 assessment shows that you should take cognizance of  
12 this from a design-basis standpoint, it sort of ends  
13 there. You don't go on to, well, maybe I can mitigate  
14 it with the flood stuff. And that's all I'm going to  
15 say.

16 MEMBER BALLINGER: But that's part of the  
17 whole process.

18 MEMBER RAY: Well, it may or may not be is  
19 the point.

20 MR. PATTERSON: I would point out that  
21 "integration" is being used in several different ways  
22 in this conversation.

23 From our point of view, the appropriate  
24 integration of mitigating strategies or the integrated  
25 approach is that at the end of the day you're assured

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1       that the equipment you plan to use for mitigation will  
2       survive the reevaluated hazard.

3               MS. PROHIDA: With a reliability component,  
4       if I may add. You know, we had a separate Appendix C  
5       developed to look at the feasibility of operator  
6       actions performed under very extreme conditions to make  
7       sure that they were reliable.

8               And I'm, you know, providing an estimate  
9       of about, you know, with a greater reliability than,  
10      you know, 0.1.

11              We also looked at the reliability or -- the  
12      reliability of the mitigation path. Of all the  
13      equipment that needed to change, state, you know, how  
14      it was being maintained, what were its support systems.

15              Once again as, you know, we don't need  
16      hazard infrequencies to do the integrated assessments,  
17      but probabilistic concepts were utilized to evaluate  
18      the reliability of the mitigation path in terms of  
19      equipment and operator actions.

20              MEMBER CORRADINI: So, can I say it back to  
21      you another way? You're saying given some mechanism  
22      to get the threat B

23              MS. PROHIDA: Yes.

24              MEMBER CORRADINI:        --     you     use  
25      probabilistic approaches on how the mitigation would

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1 function and how successful it would be.

2 MS. PROHIDA: That is correct.

3 MS. REMPE: But also if you have to rely on  
4 some equipment that is non-safety-related, you might  
5 decide to put some requirements that are not currently  
6 there on that equipment, for example, the FLEX  
7 equipment, with this integrated assessment evaluation  
8 methodology, right?

9 MS. PROHIDA: It would ask about how  
10 frequently is this equipment being, you know, tested?  
11 Is it common to the maintenance rule, you know?

12 MR. SEE: Right. You could decide to put  
13 a second one there instead of just relying on a single  
14 piece of commercial equipment.

15 MS. PROHIDA: Right.

16 CHAIRMAN SCHULTZ: Any other questions or  
17 comments?

18 (No response.)

19 CHAIRMAN SCHULTZ: Well, thank you very  
20 much. We really do appreciate your presentation and  
21 the level of detail that you have provided in the  
22 discussion. It was very helpful. Thank you.

23 And we're going to move right on to the next  
24 presentation. That will likely take us to the break.

25 And, Gary, I didn't mean that you only have

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1 until the scheduled break time. I mean B

2 (Laughter.)

3 CHAIRMAN SCHULTZ: -- after your  
4 presentation, we will have a break.

5 Gary, your presentation fits into my  
6 introduction to the afternoon session here. So, you  
7 already introduced yourself to the Committee and  
8 there's no real need to, but go ahead and introduce  
9 yourself for the record and we'll move forward. Thank  
10 you.

11 MR. HOLAHAN: I will. I am Gary Holahan,  
12 the Deputy Director, the Office of New Reactors. I  
13 actually appreciate the opportunity to speak to the  
14 Committee today representing Scott Flanders who is the  
15 Division Director responsible for all of the seismic  
16 and flooding work that you've heard about earlier  
17 today. And also on behalf of Glenn Tracy who is our  
18 Office Director for New Reactors.

19 You'll see that the title here says  
20 "Non-Concurrence." And I know we've danced around the  
21 issue of SECY papers and white papers, and I don't care  
22 to dance too much.

23 There is, in fact, a SECY paper. It is in  
24 concurrence and it has not been concurred upon by a  
25 number of people who have reservations about it. And

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1 I think that's what we should be talking about.

2 This is a serious issue. I think the  
3 Fukushima experience is serious. I think not only is  
4 the flooding issue serious, but I think part of this  
5 non-concurrence and the concerns are about regulatory  
6 philosophy and about how to make, you know, important  
7 safety decisions.

8 And that's part of the reason why the New  
9 Reactor management decided to issue a separate document  
10 as opposed to simply endorsing the staff document you  
11 heard about earlier.

12 So, my presentation will speak not at the  
13 same level of detail that you just heard, but take these  
14 issues to a policy and practice level that I think has  
15 important implications for flooding, but it has  
16 implications for many, many future decisions because  
17 it relates to the relationship between or among  
18 adequate protection, design-basis, beyond  
19 design-basis events, how decisions are made in the  
20 light of new information, and I think this is quite a  
21 significant issue.

22 And the fact that there's been some change  
23 in the proposed approach to it, I think it's important  
24 to deal with this issue now when we have a clear example  
25 so that the staff, the Committee and the Commission has

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1 a clear view on how to make decisions in the future.

2 Can I have the next slide, or should I do  
3 this myself?

4 MEMBER STETKAR: You get to do it yourself.

5 (Laughter.)

6 MR. HOLAHAN: Okay. Well, among other  
7 things, I had the privilege of being on the Near Term  
8 Task Force although I didn't write the flooding  
9 recommendation, but I certainly endorsed it.

10 And I think we should recall that, in fact,  
11 the entire chapter of the Near Term Task Force report  
12 that talks about the technical recommendations is  
13 entitled "Safety Through Defense-in-Depth."

14 And, in fact, the entire set of  
15 recommendations are built on a certain concept where  
16 you can see Recommendation 2 is targeted at enhancing  
17 protection for design-basis floods and seismic events  
18 and says "where warranted." Obviously it means  
19 something to be studied, evaluated and dealt with  
20 appropriately.

21 Recommendation 4, which is also which is  
22 the way the mitigation strategy issue is, was also  
23 called upon for enhancing mitigation for design-basis  
24 and beyond design-basis events.

25 The Committee probably also recalls that

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1       there's a Recommendation 8 dealing with severe accident  
2       management and how to deal with core melt and beyond  
3       in container performance.     And there's also a  
4       Recommendation 9 dealing with emergency preparedness.

5               I think the original recommendations were  
6       seen as a package and that the right way to put  
7       regulatory philosophy forward is to deal with important  
8       concerns through a defense-in-depth approach where  
9       appropriate.

10              Mike,    push    the    button.        Okay.  
11       Defense-in-depth -- I will also memorize the button  
12       that Mike is pushing.   Thank you, Mike.

13              Okay.    So, these recommendations were  
14       intended to constitute a rational set of enhancements  
15       for defense-in-depth and they were targeted on  
16       Fukushima issues.       This is not the only  
17       recommendations you can develop, but these were quite  
18       targeted.

19              I think it's important to recognize that  
20       the Commission supported all of these recommendations  
21       in whole or in part through various mechanisms.

22              So, for example, the mitigation strategies  
23       had a very clear order issued, rulemaking was initiated  
24       on the number of activities, and the demand for  
25       information is the approach that was taken on

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1 Recommendation 2.1, but the Commission is addressing  
2 each level of these defenses.

3 So, I'd like to spend a few minutes and  
4 you'll hear that there's quite a lot of overlap between  
5 the concerns you just heard from staff and that the NRL  
6 management has put forward. I would say the major  
7 difference is that the concerns are at a different  
8 level.

9 We see the integrated assessment and the  
10 current approach going on as a systematic and effective  
11 way of answering the safety questions about protection  
12 for flooding.

13 It may not be the only way. You could  
14 probably develop alternatives. You could develop an  
15 alternative that involved a research program. You  
16 could develop alternatives that were perhaps more  
17 streamlined.

18 And I don't wish to defend a specific  
19 alternative at the moment. I think if there's a desire  
20 to be more efficient to get some of these issues closed  
21 in a more timely manner, I think we would be supportive  
22 of that, but there are some things that it would have  
23 to do.

24 It would have to be systematic. It would  
25 have to be consistent with current regulation. It

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1 would have to make some regulatory sense.

2 So, the proposal in the COMSECY or call it  
3 "white paper," if you like, it would limit staff and  
4 industry's efforts on flooding to a confirmation that  
5 the mitigation strategies could cope with the  
6 reevaluated flood. And I think you heard quite a lot  
7 of discussions of that.

8 Now, at least the way I read the paper, it  
9 does involve a commitment that the mitigation  
10 equipment, and in most cases that involves at least  
11 early on, batteries and turbine-driven system, and  
12 later on FLEX equipment, that that equipment would be  
13 protected against a reevaluated flood.

14 RECORDED VOICE: Pardon the interruption.

15 (Telephone interruption.)

16 (Off the record comments.)

17 MR. HOLAHAN: So, I think the SECY paper  
18 does clarify the relationship between flooding levels  
19 and protection of mitigation equipment. And in my  
20 mind, that is a good thing and it ended as reasonably  
21 clear.

22 What it does is it eliminates -- and I  
23 insert the words "in our view," because I think there  
24 is some disagreement about whether what the paper is  
25 proposing constitutes a systematic reconsideration.

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1 And you've heard a lot of people don't think so, but  
2 some claim so.

3 So, I would say at least in my view and in  
4 our management view, it does eliminate the systematic  
5 reconsideration of external flooding protection for  
6 the rest of the plant beyond the just the mitigation  
7 equipment.

8 Okay. So, what does it mean to do that?  
9 So, the post-Fukushima recommendations then lose their  
10 concept as a defense-in-depth collection, because, in  
11 fact, you end up focusing on mitigation and you heard  
12 quite a lot of discussion about backing away at least  
13 to some extent, and in some muse to a very considerable  
14 extent, to the plant protection.

15 And I think if you think about it B well,  
16 I'll come back to the specific equipment of most  
17 concern.

18 Second consequence is that the systematic  
19 evaluation of total plant response, both protection and  
20 mitigation, and I think the integrated assessment is  
21 one way of doing that, that would be cut off and we would  
22 really lose the opportunity to understand the plants,  
23 their vulnerabilities and the potential for  
24 enhancements in the right areas.

25 Third, and I think you heard this before,

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1 non-safety-related systems and equipment, in this  
2 case, FLEX equipment, but even the safety-related  
3 equipment would be only partial systems.

4 So, it may be a turbine-driven aux feed  
5 water pump, but not the motor driven. So, there's a  
6 loss of redundancy.

7 There's a B batteries would be used, but  
8 they would certainly be used well beyond their original  
9 design intent. So, there's a lot of load shedding and  
10 running batteries out to extreme conditions. There's  
11 quite a lot of operator action well beyond what you  
12 would see in a design-basis event.

13 So, in total, what that ends up is  
14 non-safety-related systems or a collection of systems  
15 through the mitigation Phase 1, Phase 2 and Phase 3  
16 being used to compensate for potential weaknesses and  
17 even non-compliances with the flooding design-basis  
18 protection.

19 MEMBER SKILLMAN: Gary, I feel quite  
20 comfortable understanding your One and Two, but I think  
21 in your Number 3 there is a contradiction from the  
22 perspective of when an event really gets going, the  
23 operators are going to use every tool at their disposal  
24 in order to arrest the trajectory of the issue.

25 MR. HOLAHAN: Agreed. They should.

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1                   MEMBER SKILLMAN: And we would want them to  
2 do that. We would want them to use every piece of  
3 equipment that's credited B

4                   MR. HOLAHAN: Yes.

5                   MEMBER SKILLMAN: -- and every other piece  
6 of equipment or tank or device that they can somehow  
7 get access to, to halt the progression of the event.

8                   Is the distinction that you're making that  
9 in Number 3 if the SECY goes ahead the way it is  
10 currently written, Three becomes, if you will, gold  
11 plated as part of the ongoing order or a new order or  
12 a new rulemaking, or that it is somehow made more  
13 important that it diminishes the importance of  
14 something else?

15                   I just don't appreciate the point you're  
16 making in Number 3.

17                   MR. HOLAHAN: The point I'm making in Number  
18 3 is also alluded to in the earlier presentation.

19                   And that is, normally the design-basis  
20 protection for the plant, let's say, just form  
21 flooding, it would consider general design Criteria 2.  
22 You would establish some flooding level like you saw  
23 in these examples and you would have plant protection  
24 at that flooding level by redundant safety-related  
25 equipment that turned up in a Chapter 15 safety analysis

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1 with, you know, with all the pedigrees and requirements  
2 and covered and all those things. That's what you  
3 would expect for design-basis flooding protection.

4 Now, I think what the SECY paper is  
5 suggesting is that whether there are potential  
6 weaknesses in that collection of equipment and process  
7 of procedures, you would not deal with it.

8 You would step back and say, well, even if  
9 there are weaknesses, at least I could survive this  
10 flooded condition, because I have the FLEX equipment.  
11 I don't need the diesels. I don't need the  
12 motor-driven aux feedwater pump. I'm going to rely on  
13 the steam-driven pump to give me enough time to get FLEX  
14 equipment hooked up and that will be good enough.

15 I think the concern is that's not the way  
16 the regulations are set up. That's not our normal  
17 safety expectation for protection against design-basis  
18 floods.

19 MEMBER SKILLMAN: Now, I understand.  
20 Thank you, Gary.

21 MR. HOLAHAN: Okay.

22 MEMBER CORRADINI: And the key point I guess  
23 I want to make sure I understand is, given the current  
24 methodology to determine a design-basis flood, that's  
25 outside of the realm of how business is done in the past.

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1                   What I'm trying to get at is, the last group  
2 got me B I guess I still don't understand how these  
3 floods are determined since they're deterministic, but  
4 yet of some unknown frequency.

5                   But given that structure, your point is  
6 that's a design-basis. They've got to be treated in  
7 that regard.

8                   MR. HOLAHAN: I think the best way to  
9 understand, historically they were done in a lot of  
10 different ways. And I think you've heard from the  
11 examples and their reference in the Task Force report  
12 and I think it's quite clear.

13                   The way the staff is thinking about  
14 currently doing B I'll just call it the reevaluated  
15 flood. Don't call it design-basis. Don't call it B  
16 just call it reevaluated flood.

17                   It is basically using the same data  
18 collection, the same analysis, the same methodologies  
19 as used for new reactor siting that the Committee has  
20 seen for every early site permit and combined license  
21 application.

22                   It's that technique. It's that approach.  
23 So, I would say the same requirements have existed since  
24 -- this general design criteria 2 was probably written  
25 in 1971. And I think there was a draft in 1968, to my

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1 recollection.

2 That same general design criteria has  
3 existed for all these years. Obviously, the state of  
4 the art has changed. The guidance documents have  
5 changed. It has resulted in some additional  
6 conservatism, but we now know things that we didn't know  
7 then.

8 And the question is, how do you deal with  
9 new information? Some of that new information you  
10 might find out in the past you were wrong. Some of the  
11 differences, the new information may be I changed the  
12 level of conservatism I would like to see.

13 To me, those are two different things and  
14 you deal with them differently in the regulatory  
15 process, but there are a number of different  
16 opportunities.

17 You can see events that weren't included  
18 in the design-basis 40 years ago that we think  
19 appropriate to consider now. How do I deal with that?

20 So, the questions of how do we deal with  
21 new information, it is not simple, because there are  
22 different types of information and there are certainly  
23 different circumstances for each plant. But unless  
24 you look, you won't know how to do it.

25 And the implication is of the word

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1 "compliance" means some of those examples even today  
2 we would say they don't look like they meet NRC's  
3 requirements.

4 Some of them are interpretations and  
5 they're a little soft and say, well, that would really  
6 be a cost-justified backfit, because you're just trying  
7 to get more margin, which is a good thing, but some of  
8 them are pretty fundamental.

9 And some of the examples you just heard are  
10 a little bit concerning about whether they are good  
11 enough or not. And this B the integrated assessment  
12 or at least some systematic approach is appropriate to  
13 finding out those cases and deciding in a logical way  
14 what to do about it.

15 Okay. So, the position that the NRO  
16 management would consider is that we do support the fact  
17 that the paper is clear about how the flooding level,  
18 the reassessed flooding level would be used in the  
19 mitigation strategies.

20 That's the B it establishes a benchmark  
21 flooding to protect mitigation equipment. And there  
22 again I think you could pick other levels. This is B  
23 the orders simply say that it should be extreme external  
24 events. So, you could probably come up with a  
25 probabilistic technique.

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1           You might not have it now, but at least the  
2           flooding reevaluation levels represent a reasonable  
3           and practical way of establishing an extreme flooding  
4           event. And what that means, basically you've got to  
5           protect your mitigation equipment.

6           It's a limited amount of equipment, but  
7           that's the equipment that would be protected. And  
8           that's a very good thing. And I think most everyone  
9           is supportive. And the industry, in fact, is  
10          supportive of that approach. And, in fact, I should  
11          say for all our stakeholders.

12          And that's part of what makes you  
13          comfortable in taking time to work out is the  
14          design-basis exactly where I'd like it to be?

15          Mitigation strategy is not just an order.  
16          It also turns out in a way to be an interim compensatory  
17          measure if you think about how plants normally deal with  
18          issues that they're concerned about.

19          If you're not entirely comfortable with  
20          flooding protection, at least we have interim measures  
21          and of course they're for fairly unlikely events. So,  
22          you have, I think, a solid basis for saying, we're okay  
23          today, but this is not necessarily where we want to stay  
24          as the safety-related design-basis protection for this  
25          plant as we go forward.

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1                   MEMBER RAY: Gary, you haven't yet, and I  
2                   don't think you will looking at your slides, used the  
3                   word "backfit." And yet, we heard that word over and  
4                   over and over again.

5                   MR. HOLAHAN: Yes.

6                   MEMBER RAY: Would you insert it somewhere  
7                   in what you're going to say?

8                   MR. HOLAHAN: I will. If you will allow,  
9                   I will insert it at the end, because I think it's a very  
10                  important word. And I think it's a very important  
11                  point of confusion in this, or maybe it's a point of  
12                  different perspective.

13                  In fact, I think that's probably the  
14                  biggest disagreement with how we move forward and how  
15                  we deal with this. So, let me get there in two steps.

16                  CHAIRMAN SCHULTZ: One question, Gary,  
17                  while we're on the first bullet. Appreciate your  
18                  comments related to what you're indicating as the  
19                  reevaluated flooding level.

20                  In looking at new reactors, looking at this  
21                  systematic integrated assessment, flooding is  
22                  different than seismic.

23                  I mean, we talked about what is the  
24                  likelihood, but there's a time element involved. But  
25                  we looked at the previous examples and said, oh, my

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1 goodness, the level is above.

2 If that level occurred in an hour, one  
3 would have some level of concern. If it happened over  
4 the course of 15 days, you'd have a different level of  
5 concern.

6 MR. HOLAHAN: Absolutely.

7 CHAIRMAN SCHULTZ: Is that expected to be  
8 evaluated within the assessment process?

9 MR. HOLAHAN: Yes. Yes. And I think B

10 CHAIRMAN SCHULTZ: And do you have B does  
11 the reevaluated flooding information provide some sort  
12 of spectrum associated with timing and levels and B

13 MR. HOLAHAN: Yes, it involves not only the  
14 level, but timing. And both are important. And  
15 certainly the industry has felt that that was quite  
16 important in developing the approach.

17 Whether you are protecting equipment or  
18 you are moving fuel or whether you're changing the plant  
19 configuration has a lot to do with it.

20 So, reevaluated means not B we talk about  
21 it simply as a level, but it's really a full  
22 characterization of a flood.

23 CHAIRMAN SCHULTZ: Thank you.

24 MEMBER STETKAR: But don't get trapped too  
25 much in this sort of looking at each issue in isolation,

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1 because one can have a seismically-induced failure of  
2 dams that affects not only that dam, causes a flood and  
3 affects your plants. And the warning time on that may  
4 be quite short, you know.

5 You're talking about larger issues, but I  
6 caution against necessarily saying that every flood B

7 CHAIRMAN SCHULTZ: No, I didn't mean that  
8 you wanted to focus only on one B the long-term flood.  
9 You know, obviously talking about the seismic event you  
10 have a different likelihood and B

11 MR. HOLAHAN: I think all of those are true.  
12 And my experience with staff is that they're quite good  
13 at figuring these things out.

14 Even when there is a dam failure, the  
15 analysis of how long does it take that flood to get to  
16 the plant and how far away and are you talking about  
17 two dams, I see that there's quite good analysis being  
18 looked at when we give them the chance to do it.

19 CHAIRMAN SCHULTZ: Okay.

20 MR. HOLAHAN: So, I think I'll just finish  
21 this slide. Although we support using the  
22 reevaluating flood levels for the mitigation strategy,  
23 we think it's also necessary to have a systematic  
24 evaluation of the protection of what I would say is not  
25 just the mitigation equipment, but your normal safety

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1 equipment.

2 And in this case, I'm not so concerned  
3 about loss of coolant accident in ECCS, but I am  
4 concerned about decay heat removal, the normal decay  
5 heat removal which is, you know, diesel generators and  
6 even reliability of offsite power, although there's  
7 probably not much you can do about it, but motor-driven  
8 auxiliary feedwater systems and service water and other  
9 things.

10 The question is, should I be looking for  
11 opportunities to make that stuff more reliable for a  
12 design-basis flood, or should I walk away and say I have  
13 a different way of dealing with it?

14 And not willing to divert too much, but we  
15 do look and work with our colleagues in other countries.  
16 And, for example, if you see, the French have taken  
17 quite a serious view as to how to deal with Fukushima.

18 You could argue that their approach is  
19 largely a mitigation approach to build a separate  
20 bunkered system to handle all safety features and  
21 they're really not relying on the plant's normal  
22 equipment. But I think the B so, it is possible to have  
23 a mitigation-oriented approach, but that approach  
24 doesn't look like FLEX equipment. It looks very much  
25 like safety-related equipment. It's just another set

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1 of it.

2 So, I think there are different ways to  
3 approach this problem, but you always ought to be  
4 thinking about defense-in-depth and have I really done  
5 a reliable job.

6 MEMBER BLEY: Gary, before you leave that,  
7 a couple related questions. They relate to the  
8 integrated assessment. I can't say I'm fully  
9 conversant with what the ISG says on that. I know we've  
10 looked at it B

11 MR. HOLAHAN: We can both ask for help.  
12 Staff is still here.

13 MEMBER BLEY: Okay. But my questions about  
14 that are a couple. One is your second bullet.  
15 Wouldn't the graded integrated assessment provide that  
16 kind of information and also provide information about  
17 whether the FLEX equipment will work under these  
18 conditions?

19 MR. HOLAHAN: Yes.

20 MEMBER BLEY: And since it's graded, given  
21 the stuff they presented to us and talked about, I'm  
22 not sure why the COMSECY seems to be backing away from  
23 that concept.

24 And I didn't read it that way at first, but  
25 it seems to be at least somewhat leading away from what

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1       you=re suggesting it could be modified.

2               MR. HOLAHAN: I prefer not to put B to  
3       speculate about why people have proposed what they have  
4       proposed.

5               MEMBER BLEY: That's fine with me, but I was  
6       asking about wouldn't the integrated assessment, which  
7       is a graded approach, provide that kind of information  
8       you're suggesting would be B

9               MR. HOLAHAN: It would provide the kind of  
10      information. You would still have to make a decision  
11      about what to do with that information.

12              MEMBER BLEY: Of course.

13              MR. HOLAHAN: Yes.

14              MEMBER BLEY: Okay. Thank you.

15              MR. HOLAHAN: Okay. I'm getting closer,  
16      Harold.

17              MEMBER RAY: I'm waiting.

18              MR. HOLAHAN: Okay. Good. Simply stated,  
19      we, the management of NRO, doesn't believe that  
20      mitigation is an appropriate substitute for  
21      protection.

22              That consistent with the Commission's  
23      defense-in-depth safety philosophy, we ought to be  
24      worried about both mitigation and prevention, and we  
25      should be treating both of those in some appropriate

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1 way.

2 Anything else to say? Good. Let me talk  
3 about backfit, because I think it's important. So,  
4 what you heard from me and from some of our staff is  
5 that they are thinking that there are potential  
6 compliance issues, there are potential licensing basis  
7 issues.

8 Some of this stuff looked like, well, maybe  
9 in 1971 we thought this was a reasonable way of meeting  
10 GDC-2. But now that we've learned what we've learned  
11 and we know what we know, it's kind of hard to make that  
12 decision now.

13 I would say the people who are not in  
14 agreement with the COMSECY are worried about whether  
15 additional assurance ought to be provided on the  
16 protection end.

17 I think the authors of the COMSECY and the  
18 staff supporting it are thinking the original  
19 design-basis constitutes adequate protection. If I  
20 want to change that, I should be in a cost-justified  
21 substantial safety improvement backfit process.

22 So, if you lay out the backfit rule,  
23 50.109, it addresses adequate protection, redefinition  
24 of adequate protection, cost-justified enhancements.

25 Whether you see this issue of new

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1 information about flooding as supplemental to an  
2 adequate design-basis or whether you see it as the  
3 necessary action to be sure that the design-basis is  
4 adequate, is the difference between compliance backfit  
5 and cost-justified backfit.

6 And I think when you read the paper and it  
7 talks about B the paper is written from the point of  
8 view that, you know, probably most of these potential  
9 improvements wouldn't pass the cost-justified backfit  
10 test. So, why am I spending my time working on them  
11 when I'm busy and I could be doing other things?

12 Okay. So, the staff supporting the SECY  
13 paper, they're not ignoring safety, but they are  
14 thinking about safety in a different way.

15 They're thinking the plant got licensed,  
16 it has a licensing basis, we declared it was an adequate  
17 protection, we've never declared it as inadequate, and  
18 anything I do to supplement the protection now ought  
19 to be justified by cost.

20 It's not likely to except maybe in a couple  
21 of extreme cases, I'll know them when I see them, and  
22 I'll just focus on those.

23 Not only that, when I've got the mitigation  
24 equipment in place, it will make the likelihood of this  
25 being a substantial safety enhancement worthy of cost

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1 is even less likely. And, therefore, this will not be  
2 a bad time to walk away from the integrated assessment,  
3 because it probably isn't going to get me where I want  
4 to go.

5 I can tell you the Task Force report was  
6 written from a point of view, and I didn't write that  
7 section, but I know it very well, that perhaps the  
8 design-basis protection for these plants does need  
9 another look because of new events that we know, new  
10 analysis that new facts make it legitimate to ask  
11 design-basis adequate protection questions, not just  
12 cost-justified questions.

13 And it will also say if you do the  
14 integrated assessment or something similar to it and  
15 you get sufficient amount of information, you can  
16 answer both of those questions.

17 And it may be a few of these and a few of  
18 those and a lot of plants that don't need anything more,  
19 but it seems to me until B well, until you put the pieces  
20 together and have a systematic way of collecting the  
21 information and making the logical safety decisions,  
22 you're probably not in a place that you want to be. At  
23 least that's my perception.

24 Does that help?

25 MEMBER RAY: Oh, yes. I think B I hope my

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1 colleagues, I'm sure they listened closely, as I did,  
2 but that's a better way of saying what I tried to comment  
3 on earlier from time to time.

4 CHAIRMAN SCHULTZ: Are there other comments  
5 or questions from the Committee?

6 (No response.)

7 CHAIRMAN SCHULTZ: Gary, I want to stress  
8 the Committee's appreciation for your discussions this  
9 afternoon especially given your background on the NTTF  
10 document and your other work associated with addressing  
11 issues that came from Fukushima.

12 You provide a unique perspective that is  
13 very helpful for the Committee's deliberation. So,  
14 thank you.

15 MR. HOLAHAN: Thank you.

16 CHAIRMAN SCHULTZ: And I want to thank  
17 everyone who participated in the discussions this  
18 afternoon.

19 With this at this time, I'd like to declare  
20 a recess and we will break until 3:40 and begin B  
21 reassume the discussions.

22 (Whereupon, the proceedings went off the  
23 record at 3:25 p.m. for a brief recess and went back  
24 on the record at 3:42 p.m.)

25 CHAIRMAN SCHULTZ: I'll call the meeting

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1 back from recess and we will now proceed to the final  
2 session portion of the afternoon and at this point,  
3 we're pleased to hear from Ed Lyman, Union of Concerned  
4 Scientists who would like to present some views  
5 associated with the rule and the staff white paper.

6 Ed, welcome. Thank you for being here.

7 DR. LYMAN: Yes, and thank you on behalf  
8 of UCS, I appreciate the invitation to give a  
9 presentation.

10 When I was first invited to speak it was  
11 about the proposed preliminary draft rule language that  
12 was a version which was less mature than the one that  
13 was circulated recently.

14 There was also no white paper and certainly  
15 there was nothing on the schedule about staff  
16 nonconcurrence. So, all that was new from, I would  
17 have to say, the previous panel was a tough act to  
18 follow.

19 And I had to try to interpret what the white  
20 paper meant over the course of the last couple of days  
21 and I thought I was going out on a limb, but now I feel  
22 more confident that I do understand the basis for it  
23 and I was right. So, you'll see there's a lot of  
24 similarity between some of things I'm going to be saying  
25 and some of the concerns we've already heard.

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1                   MEMBER RAY:  Ed, if you could speak up just  
2                   a little --

3                   DR. LYMAN:  I'm sorry.

4                   MEMBER RAY:  -- bit more, that's fine.

5                   DR. LYMAN:  How's that?

6                   MEMBER RAY:  Good.

7                   DR. LYMAN:  So, I think it's clear that the  
8                   NRC has a big problem and that problem's also the  
9                   American public's problem because we have a hundred odd  
10                  nuclear reactors here and it seems that many, if not  
11                  most, of them currently exceed the -- or they face  
12                  hazards which exceed those that they were designed to  
13                  withstand according to their original design basis.

14                  And the question is, what is the NRC going  
15                  to do about that?

16                  The industry and it seems some of the NRC  
17                  staff apparently maintain that these are beyond design  
18                  basis hazards and should be treated accordingly.  But,  
19                  in thinking about it, our conclusion is this is a misuse  
20                  of the term, it's conflating two different things, one  
21                  was the original licensing basis of the plant in the  
22                  Stone Age and the other is a legal concept of design  
23                  basis.

24                  So, in our view, the simplest way to think  
25                  about it is that the reevaluated hazards done according

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1 to the same methods that are being used now for new  
2 reactors and in a more consistent and complete way.  
3 But that constitutes the true design basis and the  
4 original ones were wrong.

5 So, that pretty much sums up where we think  
6 the threshold should lie and I'd like to point out that  
7 I apologize for the ongoing confusion between design  
8 basis, beyond design basis and the cost justified  
9 backfits. You may know that the Union of Concerned  
10 Scientists versus NRC that led to the Court decision  
11 that is being cited here before today and has caused,  
12 I think, more damage probably than it's helped matters.

13 So, with regard to the rule making in  
14 general, we don't see a problem with having a mitigation  
15 of beyond design basis events rule and maybe it should  
16 be called mitigation of extended design basis events  
17 rule because we think that that could be a vehicle for  
18 addressing some of the concerns that were raised by the  
19 Near Term Task Force and were supposed to be remedied  
20 with Recommendation 1 which is now God knows where and  
21 it's in limbo.

22 So, this rule could actually be a mechanism  
23 for doing that if it's done the right way. And so we  
24 think the cleanest way to do it at this point, of course,  
25 it depends on how you define what the beyond design

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1 basis or what the extended design basis is.

2 So, the cleanest way at this point is we  
3 upgrade the design basis to incorporate all the  
4 reevaluated external hazards, that's certainly a  
5 design basis. It's possibly moving, you know, just the  
6 bar line from one arbitrary point to another but at  
7 least we know it's being done according to a more  
8 consistent set of methods, a more complete set of  
9 methods and, therefore, it probably can clean up that  
10 heterogeneity that establishes the current licensing  
11 basis for some of the plants.

12 And then, more severe events would  
13 constitute the extended design basis and those would  
14 be addressed by the mitigating strategies, so, simple.

15 But the rule should not be a codification  
16 of the current orders and the FLEX guidance. And this  
17 is the approach that's been taken by the NRC staff and  
18 the industry. I sat in on the meeting marking up the  
19 NEI-12-06 and the intent was to turn that into the  
20 guidance for the new rule.

21 And since there is not even a draft rule  
22 yet, it seems pretty true to me to have guidance in the  
23 first place but the fact that it's just being -- it's  
24 a line edit of the FLEX guidance concerns us because  
25 we think that's not the way to address the problems with

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1 the current approach.

2 And the current approach, as we've heard  
3 already, is that we have some unspecified beyond design  
4 basis external event that does not cause damage beyond  
5 the design basis to anything other than the AC power  
6 sources and normal access to the ultimate heat sink.  
7 It's a beyond design basis that magically doesn't cause  
8 damage beyond the design basis.

9 And that scenario does not represent what  
10 happened at Fukushima given the whole point of this  
11 exercise is supposed to be at least to address the  
12 circumstances of Fukushima. We think it fell short  
13 from the beginning and this has to do with the fact that  
14 DC power is assumed to be available as well as the  
15 electrical distribution systems. So now we've raised  
16 very early on the development of the guidance that was  
17 ignored.

18 It also contains these confusing concepts,  
19 robust and reasonable protection that have been  
20 implemented in what seems to be a very unequal way  
21 across the fleets. Utilities seem to be building  
22 category one seismic buildings for the FLEX equipment,  
23 others less than that. That was the kind of thing that  
24 this whole effort was supposed to avoid because the  
25 public still doesn't have the sense of is there a

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1 consistent level of protection now against a Fukushima  
2 type accident.

3 And this has happened because the industry  
4 tail has wagged the NRC's dog. That started back in  
5 2011 when the industry started to buy equipment which  
6 they called FLEX before the NRC had even acted on  
7 developing or putting in an order of guidance.

8 That made it politically very difficult  
9 for the NRC to reject something -- reject FLEX or, you  
10 know, except for tinkering around the edges. And this  
11 isn't just a conspiracy theory, but if you read the  
12 interim SERs on the FLEX plans, you see this statement,  
13 stakeholder input influenced the NRC staff to pursue  
14 a more performance based approach, e.g. FLEX, and Near  
15 Term Task Force Recommendation 4.2.

16 So, there you have it, it was the tail  
17 wagging the dog. And I think part of the problem where  
18 we are now with, I would say in an illogical and  
19 inconsistent framework of which that's become clearer  
20 over the last two days is partly because the NRC was  
21 reluctant to really honor the intent of the Near Term  
22 Task Force in coming up with a comprehensive framework  
23 agree with these things, the industry's approach seems  
24 to be they want to make the whole thing go away to the  
25 extent they can and get away at least with the minimum

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1 amount of expense and difficulty they can.

2 And just another example of the kind of  
3 confusion that's coming out of these FLEX plans and the  
4 fact the design basis is what the FLEX strategies are  
5 being designed to. I won't read the whole thing but  
6 for Columbia Generating Station is a dry site. It  
7 doesn't have to address floods at all.

8 Yet, if there were an upstream dam failure,  
9 the Energy Northwest itself has reported that some of  
10 the strategies for bringing in equipment from the  
11 staging areas for the SAFER deliveries could be  
12 difficult to perform if there were inundation levels  
13 that resulted in the airports and roads not being  
14 usable. And they raised that concern and the NRC staff  
15 replied, well, you don't have to worry about that  
16 because that event is beyond the design base.

17 So, you have, again, you're talking about  
18 an event which may not represent anything near what the  
19 type of event that you need to worry about with regard  
20 to the available infrastructure being supporting the  
21 delivery of the SAFER equipment.

22 So, as far as consolidation and a few weeks  
23 ago, this was still called the consolidated rule, but,  
24 you know, we think it does make sense to consolidate  
25 the pieces that are being put together, put mitigating

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1 strategies together with the procedures that are needed  
2 to carry them out and also consider pre and post-core  
3 damage in the same framework. That makes sense.

4 But, it should be noted that we heard  
5 before the FLEX equipment would be there and could be  
6 used post-core damage but I think everyone recognized  
7 that there may be strategies and procedures would have  
8 to be a lot different for post-core damage.  
9 Deployment, the equipment may have to be modified so  
10 it's not that simple. But putting it all together in  
11 the same rule might clarify that.

12 The division of the recommendations into  
13 these different orders has already listed  
14 inconsistencies and the issue of the mitigating  
15 strategies being separated from reliable hardened  
16 vents which are, in many cases, needed to carry out the  
17 mitigating strategies has led to other things I don't  
18 understand like why some Mark I and II boiling water  
19 reactors need to satisfy the hardened vent order before  
20 they can satisfy their mitigating strategies and others  
21 don't.

22 Some of them are relying on their existing  
23 vent apparently even if it's not a reliable hardened  
24 vent.

25 But, after consolidation we thing the

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1 station blackout piece of it should remain a separate  
2 subrequirement because I think it's getting too  
3 confusing by trying to lump everything together in one  
4 integrated response. I think focusing on the station  
5 blackout related aspects is as important.

6 And so the core of the original proposed  
7 rule which was the station blackout focused rule should  
8 remain.

9 And we think trying to develop different  
10 parts of the rule or subject different parts of this  
11 consolidated rule to different backfit requirements  
12 sounds like nightmare and maybe the Commission should  
13 just step back and say that adequate protection means  
14 no Fukushimas in the United States and I think that  
15 would cover the entire rule.

16 Now validation was something that was not  
17 really present in the original guidance. We were  
18 pressing for it for several years. I understand it's  
19 now in the proposed revision of NEI-12-06 and that's  
20 a good thing but we haven't seen really the details  
21 other than how it was presented at the meeting the last  
22 couple of days.

23 But if you're going to have a performance  
24 based rule, then you need performance evaluations.  
25 Otherwise, they're meaningless. So, you know, the

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1 model we think should be the security rules and  
2 performance assessments should be based not unlike on  
3 a force-on-force inspection model rather than the  
4 emergency planning exercises which we've heard about.  
5 So, that would mean something more like a three year  
6 rather than an eight year planning cycle.

7 And validation should be scenario driven.  
8 And I was very interested to hear that the industry now  
9 wants to challenge FLEX scenarios by using a sort of  
10 stress test approach where you assume the specific  
11 event and follow that all the way through where ever  
12 it may lead and be consistent because we were calling  
13 for that two or three years ago.

14 The other thing we heard was FLEX has to  
15 be flexible. You don't want to tie it to any one  
16 scenario because you can't deal with everything. And  
17 that makes a certain amount of sense but also the flip  
18 side of that is if you choose a specific scenario, then  
19 you should be able to show that the FLEX strategy is  
20 going to work. And why not at least do that for some  
21 select range of initiating events? In other words, a  
22 stress test type approach just to validate that the  
23 strategy is flexible. You can't do everything but you  
24 can do a subset.

25 And so --

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1                   MEMBER SKILLMAN: Ed, before you change  
2 slides, let me ask this. I would like to appreciate  
3 UCS's thought that the real validation is  
4 force-on-force. Let me tell you why I present that  
5 challenge.

6                   Security is a potent team at every site but  
7 the operations team is a potent team and the maintenance  
8 team is a potent team. The organization that has the  
9 shift technical advisors is a potent team. And all of  
10 those have to work together, for whatever scenario  
11 comes at the site.

12                   So, it seems to me that by suggesting that  
13 just force-on-force inspections will be sufficient --

14                   DR. LYMAN: Oh, no, I'm sorry --

15                   MEMBER SKILLMAN: You know, it prevents  
16 having the other teams whose excellent participation  
17 is essential from rehearsing and it is that rehearsal  
18 that really makes the difference when the event really  
19 occurs.

20                   DR. LYMAN: No, there's a  
21 misunderstanding here. I wasn't suggesting you should  
22 just test the security portion. I was saying that the  
23 model for how force-on-force inspections are  
24 conducted.

25                   In other words, there's an NRC team, they

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1 go to the site, that is a period of inspections. They  
2 present scenarios for beyond design or design basis  
3 extension events and then the staff, to the extent you  
4 can, actually exercises the scenarios and shows that  
5 they can do what they're supposed to do. That's what  
6 I meant.

7 CHAIRMAN SCHULTZ: So, that it would be  
8 conducted in the same -- but the emergency preparedness  
9 exercise will be conducted in a similar fashion that  
10 force-on-force security evaluations are done?

11 DR. LYMAN: Right, it's a distinguish from  
12 EP where it's not, you know, you get people together  
13 in a room, right, and you do, you know, table tops or  
14 role playing, that kind of thing that's short of what  
15 we think needs to be done.

16 Now, security simulates, you know, you  
17 have miles here and you simulate the actual combat,  
18 probably not to that extent, but the kinds of validation  
19 we were hearing about, you know --

20 In other words, you choose a scenario, you  
21 develop the plant state and then you show the FLEX  
22 strategy that you have on the books, we work for that  
23 plant state and where, you know, you need to do actual  
24 physical validation and you can do it then you do it.  
25 It will be artificial but I think you might learn a lot

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1 from that. I mean that's just integrated validation.

2 MEMBER SKILLMAN: I see what you're  
3 saying. Thank you. Thanks for that clarification.

4 MEMBER BROWN: Did you want every -- I mean  
5 are you suggesting every three years rather than every  
6 eight years also? I mean that was another thing, not  
7 just a model but also the --

8 DR. LYMAN: Yes, I mean that's the current  
9 frequency of the force-on-force --

10 MEMBER BROWN: That's three years?

11 DR. LYMAN: -- inspections.

12 MEMBER BROWN: Okay.

13 DR. LYMAN: And so, as far as the white  
14 paper in which, you know, I only read a couple of days  
15 ago but it seemed to me and I think I've heard this as  
16 well, that the approach is FLEX is a panacea for nearly  
17 all these difficult issues about what to do with plants  
18 that are now outside of their design basis. And it's  
19 like a get out of jail free card almost. I mean we don't  
20 think these difficult issues can be resolved that  
21 simply and so I would put in a plug for maintaining the  
22 integrated assessments.

23 I think the staff panels made the case made  
24 the case pretty clear that that kind of information was  
25 valuable no matter where they can go with it. And I

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1       also, and I know we heard this just before that this  
2       approach seems to put too much emphasis on mitigation  
3       on the projection rule, I agree with that.

4               And also the question of delay, if this  
5       were all farmed off to the rule then we may not be  
6       talking about compliance until 2020 or later. If you  
7       look at the compliance with the order as in the time  
8       it's taking for that, so hopefully staying on the  
9       current path might help to resolve some flooding risks  
10      with the reevaluated hazards sooner than that.

11             So I think we're worried that there will  
12      also be an unacceptable delay in what we think is an  
13      acute threat.

14             So, and I put this slide in before. It  
15      came up earlier today but I was also struck by this  
16      confusion between the draft rule, so I see that I wasn't  
17      the only who's confused. So, this is the kind of thing  
18      that really needs to be cleared up but hopefully if you  
19      had a rule which took, you know, Recommendation 1's  
20      approach seriously, tried to come up with a consistent  
21      way for treating extended design basis events then we  
22      wouldn't get into this kind of confusion.

23             That's all I have, so thank you.

24             CHAIRMAN SCHULTZ:       Thank you.       Any  
25      additional comments or questions from the committee?

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1                   MEMBER RAY: Yes, let me ask this. We're  
2 talking about in terms of eternal hazards things that  
3 have long intervals between them, presumably they  
4 exceed its design. I think that's a fair starting  
5 point if it's not, you tell me. But --

6                   DR. LYMAN: Well, it's an open question.  
7 You can ask the question, though.

8                   MEMBER RAY: All right. My question is  
9 how urgent USC sees this to be? For example, there was  
10 a proposition floated at one point in the wake of  
11 Fukushima of an every ten year assessment of external  
12 hazards.

13                   In terms of something with a recurrence  
14 interval of a thousand years or so, perhaps every ten  
15 years isn't unreasonable. I just wanted you to opine  
16 on that in terms of how urgent it was that we get this  
17 nailed down or is it something that would take five  
18 years to complete or ten years to complete reasonable?

19                   DR. LYMAN: Yes, I mean we didn't see a  
20 problem with that ten year interval when the  
21 recommendations first came out. I think it's not much  
22 analysis put into that.

23                   But, I think, you know, there's  
24 certain -- probably certain climatic variations are  
25 maybe occurring on a time scale that would say ten years

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1 is reasonable, maybe seismic reevaluations are not  
2 something that need to be done that frequently.

3 But, I think we need to keep an eye on  
4 climate change and be flexible enough to know when it  
5 looks like things are changing and address them. So  
6 maybe you don't want to be locked into a rigorous, you  
7 know, some sort of a set interval but there are other  
8 criteria you can use.

9 MEMBER RAY: But it sounds to me like you'd  
10 say some reasonable time for phenomena of the kind that  
11 we've been discussing is acceptable or not unreasonable  
12 to --

13 DR. LYMAN: Right. And in the general  
14 question is if you -- are you going to change the design  
15 basis each time? And I think that's a little more  
16 difficult. You know, we're suggesting this kind of one  
17 time update, but I think you'd really get a lot of push  
18 back if you try to say we're going to be changing the  
19 design basis for all the safety related equipment every  
20 ten years.

21 So, I would have to think about that. But,  
22 you know, maybe this is the reset where you could then  
23 transition to something less but I think we need a reset  
24 at this point at least to clean the slate with regard  
25 to the initial design basis issues that aren't being

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1       dealt with right now.

2                   And as afar as the frequency goes, I think  
3       we've heard that the flooding people can't give you a  
4       frequency, right, if it's more -- less frequent than  
5       a hundred year flood. And the seismic people, they may  
6       give you frequencies but I know some people don't  
7       believe that could be done with enough precision to be  
8       meaningful.

9                   So, I don't think you can conclude. I  
10      think one of the lessons of Fukushima was, you know,  
11      we suppose that something is a low probability accident  
12      when you're dealing with external events and a lot of  
13      certainty.

14                  And I think the flaw that I keep hearing  
15      here in this agency is that's still the bottom line  
16      assumption. We heard it yesterday, we heard it today.  
17      These are rare events but you don't have to, you know,  
18      be wasting money chasing after them and I don't think  
19      that's established right now. When you're talking  
20      about external events, we simply don't know if the  
21      initiating event frequencies are well enough you can  
22      say in the PRA sense that they're low frequency and  
23      deserving of less treatment. We don't know that yet.

24                  CHAIRMAN SCHULTZ: Well, thank you very  
25      much, Ed. I appreciate you being here and we'll

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1       certainly take your remarks into consideration.  
2       Appreciate it.

3               At this point in time, I'd like to ask for  
4       additional public comments and we'll do so within the  
5       room. If anyone would like to -- Jim?

6               MR. RILEY: Thanks, Steve.

7               CHAIRMAN SCHULTZ: You asked for some time  
8       at the microphone here. So, why don't you start, Jim?

9               MR. RILEY: Thanks, Steve.

10              My name's Jim Riley, I'm with Nuclear  
11       Energy Institute and I'm responsible for our response  
12       to the providing 50.54(f) letters.

13              I want to start off with I think what  
14       everybody on the panel or the committee fully  
15       understand is safety is paramount to the industry.

16              And the concepts behind what we have done  
17       to respond to Fukushima including some of the things  
18       we're doing to tune our response to 50.54(f) response  
19       all relate to that issue.

20              After spending a day and a half or so on  
21       FLEX, I know you folks are very well familiar now with  
22       the degree of work effort that has gone into the  
23       development of FLEX and the thinking on ability to get  
24       the equipment to the plants and the analyses that have  
25       been done to ensure that it would work.

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1           In fact, the existence of FLEX, and it is  
2           there, the plants are putting into place now or have  
3           already. That's a very significant safety benefit to  
4           everybody.

5           And I think any additional actions that we  
6           might undertake ought to be looked at from the  
7           perspective of the net safety benefit that would be  
8           added beyond that that we've already achieved with FLEX  
9           in place in addition to the basic safety that the plants  
10          already have because of their protection and the other  
11          things we're all very familiar with.

12          That being said, one of the reasons that  
13          we got, I think to where we are now and some questions  
14          about how the integrated assessment ought to be done  
15          was some work we did to develop examples for integrated  
16          assessment to figure out exactly what would be  
17          necessary to do one and what was the amount work that  
18          would be necessary to finish the graded approach that  
19          has been discussed.

20          And it was becoming apparent that the  
21          graded approach was still involving a very significant  
22          amount of work. The evaluations that were required by  
23          the appendices for equipment and operator response were  
24          a complex evaluation.

25          So, the question becomes whatever an

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1 intent to do that level of safety -- of evaluation and  
2 is it necessary in light of is the effort, I guess,  
3 justified by the increase in safety?

4 So, that led to some questions about how  
5 is this integrated assessment being done? And there  
6 are ways that we can focus it.

7 As I've already mentioned, FLEX is kind of  
8 the foundation of the industry's response to Fukushima  
9 and we feel it's really important to ensure that  
10 mitigating strategies, whether it be FLEX or some other  
11 method that deals with individual hazards is essential  
12 to ensure that you can continue to deal with these  
13 hazards using FLEX or another mitigating strategy.

14 And so, we felt that if we're going to look  
15 at ways to focus our efforts on the integrated  
16 assessment, again, from the standpoint of cumulative  
17 effects of radiation, or excuse me, radiation sometimes  
18 it seems that way, regulation or things of that nature  
19 that we ought to be taking a look at where our efforts  
20 can best be spent.

21 So, we thought an acceptable way to do  
22 this, and this is something that developed into this  
23 other approach to an integrated assessment would be to  
24 look at the ability to continue to carry out mitigating  
25 strategies in the face of flood packets to looking at

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1 the specifics of how you can carry out mitigating  
2 strategy, focuses the effort.

3 And the things that we were coming up with  
4 was a way of doing that that focused the scope in the  
5 manner that I just talked about. And also, I did that  
6 with a level of rigor that's appropriate for dealing  
7 with beyond design basis events.

8 And one thing that is probably worth  
9 mentioning and that didn't come out yet is the kinds  
10 of things that can cause the utility to do an integrated  
11 assessment can be relatively minor, not always. But  
12 remember, that anybody that's driven into the  
13 integrated assessment then has to follow the procedure.

14 And the kinds of things that would get you  
15 to do an integrated assessment, for example, are cases  
16 where your design basis was silent on a hazard, in  
17 particular here, local intense precipitation,  
18 sometimes that can have pretty significant ponding  
19 effects but most plants didn't consider local intense  
20 precipitation as part of their flooding design basis.

21 The fact that they would now how to  
22 consider it as part of a reevaluated hazard would drive  
23 you into doing an integrated assessment.

24 The methods for doing local intense  
25 precipitation calculations were very conservative.

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1 They used hydrometeorological reports that had very  
2 conservative values in them.

3 Some sites are trying to use -- are using  
4 site specific evaluations to reduce that, but it's an  
5 example of the hydrometeorological reports would, in  
6 some cases, tell you you had to assume 19 inches of water  
7 in a rain in an hour with no drainage. Well, you know,  
8 that's a pretty conservative approach to doing these.  
9 So, it caused, yes, that's what caused some folks to  
10 look at site meteorological studies.

11 In addition, here's another example, if  
12 your design basis flood level was, pick a number, X  
13 feet, and you do a reevaluated hazard and it turns out  
14 that your new hazard, that flood level is, I'm going  
15 to use numbers.

16 Let's say your design basis was ten feet  
17 and there was no information in your design basis as  
18 to what was driving the ten feet other than a particular  
19 event. You do your reevaluated hazard and it turns out  
20 that the hazard was giving you eight feet of water and  
21 there was two feet of wind driven waves on top of the  
22 water, you're still at ten feet.

23 But you had to do an integrated assessment  
24 because there was no mention of wind driven waves in  
25 your design basis, whereas, there is one now in your

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1 reevaluated hazard. That's a trigger for integrated  
2 assessment.

3 I'm only saying that not to deride the fact  
4 that an integrated assessment is required there because  
5 you have to figure out what the hydrodynamic effects  
6 of those wind driven waves were.

7 But to give you an idea of what kinds of  
8 things captured folks into doing an integrated  
9 assessment.

10 So, a fair number of people have to do  
11 these. The amount of effort that needs to be provided  
12 or to only to do an integrated assessment, again, ought  
13 to be taken on in recognition of the net safety benefit  
14 of what you're trying to do.

15 And, one other thought, as we considered  
16 what we might do with integrated assessment in light  
17 of the concepts that are in the draft white paper, the  
18 draft SECY, I want to make sure everyone realizes that  
19 integrated assessment was not -- was a fairly rigorous  
20 evaluation that we were conceiving. We're developing  
21 thoughts on how to do that, we'd have to meet with the  
22 staff.

23 But the -- what we were conceiving was  
24 something that would use a methodology similar to that  
25 that was used for designing FLEX. There's a pretty

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1 detailed guidance within the FLEX implementation  
2 guide, NEI-12-06, on how to account for floods.

3 We're also going to rely on the FLEX  
4 validation process that, which if you're not familiar  
5 with, is a way of validating that operator actions can  
6 be completed. There's a time line that's laid out what  
7 actions are necessary in the evaluation of whether  
8 those actions can be done.

9 So, the process that we are envisioning  
10 would look at, when you say can I still implement FLEX  
11 in light of this flood? It would consider all aspects  
12 of FLEX. Your ability to carry out phase one and phase  
13 two of FLEX, your ability to shutdown the plant and  
14 deploy the equipment, be able to get it to where it's  
15 supposed to be, hook it up, all the operator actions  
16 could be done in consideration of the conditions that  
17 were in place, the flooding conditions that we're  
18 weighing or when or whatever's appropriate.

19 But the evaluation to say that I can  
20 implement FLEX would include all those things to a level  
21 of rigor that we felt was appropriate for the event that  
22 we were considering again.

23 Again, remembering what we need to be  
24 looking at is what can we do here to prevent distracting  
25 our plants from other things that they ought to be doing

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1       that are truly safety significant and the amount of work  
2       we're talking about to address all these various  
3       aspects of Fukushima response is very significant.

4               So, I think we need to be smart, we need  
5       to be spending our efforts where they can bring us the  
6       most benefit.

7               CHAIRMAN SCHULTZ:   Thank you for your  
8       comment.

9               I'm gong to turn to the phone line now  
10       because they've been patiently waiting and I want  
11       to -- I'll come back to the room for any additional  
12       comments.   But at this point, I'd like to go to the  
13       phone line and as we did earlier today, if someone would  
14       say hello so we know that the line is open, I'd  
15       appreciate it.

16               Thank you, we do hear you now.   If anyone  
17       would like to make a comment at this time, please state  
18       your name and make the comment you'd like to provide  
19       for the record.

20               I'm not hearing comments.   Is anyone  
21       trying to get off mute?   Not hearing any comments,  
22       we'll go ahead and close the phone line and I'll ask  
23       for any additional comments from members of the public  
24       in the room.

25               Seeing none, then we'll close the public

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1 comment period and I'd like now to go into the next topic  
2 on the agenda which discussion -- is a discussion by  
3 the members of the committee.

4 Bill, are you still on your line? Bill  
5 Shack?

6 CONSULTANT SHACK: I'm still here.

7 CHAIRMAN SCHULTZ: Bill, this would be an  
8 appropriate time for you to share your thoughts given  
9 what we've heard over the last two days.

10 CONSULTANT SHACK: Well, I'll be writing  
11 up some notes.

12 CHAIRMAN SCHULTZ: Thank you.

13 CONSULTANT SHACK: You know, on the  
14 COMSECY, I think I certainly agree that there's a need  
15 to make sure that the FLEX equipment and the mitigation  
16 strategies are updated for the flood hazard. And I'd  
17 even go so far as to say it should be updated to a current  
18 seismic hazard, too. Although, I think the flood  
19 hazard is the one that there's a drastic difference.

20 I'm still a little bit concerned about the  
21 level of treatment in the rule as in the order for, you  
22 know, the beyond design basis is still undefined. I  
23 think I'm actually really comfortable with seismic  
24 because we do have it so that (telephonic interference)  
25 talk about the hardware that there is, in fact, fairly

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1 significant margin and the equipment itself is fairly  
2 robust.

3 But again, the flooding is a greater  
4 problem where you're quire sure or you have less  
5 confidence that you understand the hazard I think than  
6 we do of the seismic base.

7 Again, I think on the white paper you  
8 really do have to do the integrated assessment. I just  
9 don't see any real choice there. I don't understand  
10 the reluctance to do it. It just seems to me it needs  
11 to be done whether it changes the design basis or not,  
12 it's something I think you decide after the integrated  
13 assessment. But it's certainly something that should  
14 be considered.

15 And again, in the rule, if you don't change  
16 the design basis, I do not -- I'd certainly like the  
17 words design basis disappear from the rule and say, you  
18 know, the most recent evaluation of extreme external  
19 events just in case we do go through a ten year  
20 evaluation or, you know, the curve reevaluation, but  
21 we've decided not to change the design basis. I think  
22 it still should be taken. The mitigation rule on our  
23 best estimate of the extreme hazard that you might face  
24 it.

25 Those are the comments that come off the

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1 top of my head right at the moment.

2 CHAIRMAN SCHULTZ: I appreciate that very  
3 much, Bill.

4 I want to go around the table now with  
5 members of the subcommittee and remembering that we  
6 have the full committee meeting coming up, let me give  
7 you a premier of what I have been thinking related to  
8 the conduct of that meeting.

9 We've had three major, well, we've had  
10 three major elements of our presentations over the past  
11 two days and we have on our agenda placeholders for each  
12 of those, that is, the industry and the presentations  
13 associated with what has been done with the approach  
14 to addressing extreme external events through the FLEX  
15 program.

16 We have a placeholder for the discussions  
17 associated with the proposed rule.

18 And then we also have discussions  
19 associated with the COMSECY and the nonconcurrences as  
20 presented this afternoon, that information.

21 And so, we have opportunities for the full  
22 committee, three of whom are not here right now, to hear  
23 all of that material. Of course, it's much condensed,  
24 the time frame is much condensed over what we've had  
25 for the day and a half.

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1                   We have about three hours in the full  
2 committee meeting for those topics.

3                   So, my thought is, we do need to spend time  
4 associated with the COMSECY because we're going to  
5 receive that next week and we have not had a chance to  
6 examine the wording which we've learned over the past  
7 day or so is very important to understand how it's being  
8 presented. Is it being presented in a way in which we  
9 would interpret a position and then we have to determine  
10 what we would agree with or disagree with in regard to  
11 that.

12                  So, I think that block of time associated  
13 with a discussion gives the staff a chance to also look  
14 at the document and come back and we have a chance to  
15 ask additional questions related to that. And that  
16 segment would be fine.

17                  I would like the industry to make a  
18 presentation. Again, they need to condense it and I've  
19 talked with them about how they might do that and they  
20 have indicated that they have some experience in doing  
21 that because they've made the presentation both in kind  
22 of the day long format as well as the hour format.

23                  So, they feel that they can accomplish that  
24 by providing a prime example instead of several  
25 examples of the overall FLEX approach and a summary of

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1       how the process would work in a condensed form.

2               Now, we're not going to get additional  
3       information associated with the rule making process,  
4       the proposed rule making. As Tim indicated this  
5       morning, he's not providing us any additional  
6       information between now and the full committee meeting.

7               At the same time, we have an opportunity  
8       to reflect on what he has presented today and what we've  
9       heard and we can perhaps get the transcript by next  
10       Friday and look at that if we want.

11              So, I would suggest that we -- my approach  
12       would be to focus the full time we have allocated to  
13       that first topic that I've described. Perhaps give a  
14       little more attention to having the industry present  
15       what they have, in a summary fashion, what they've  
16       delivered to us today for the benefit of the other  
17       committee members.

18              And then have the staff available to answer  
19       any questions we might have, follow-up questions we  
20       might have on the rule making.

21              So, that's my perspective and as we go  
22       around the table, I'd like you to provide yours as well  
23       as comments on the discussions we've have over the last  
24       few days.

25              So, Pete, I'd like you to begin in terms

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1 of addressing those two topics as you see fit.

2 MEMBER RICCARDELLA: Yes, well, I guess I  
3 could start out with a question I had. Are the plans  
4 to write a letter, one letter, two letters or could you  
5 clarify that a little bit?

6 CHAIRMAN SCHULTZ: We have not made a  
7 commitment -- we going to discuss and deliberate at the  
8 full committee meeting the action that we will take.  
9 So that's the answer to your question.

10 MEMBER RICCARDELLA: To be determined in  
11 that regard, determined, but can you make a guess?

12 CHAIRMAN SCHULTZ: Well, we need to  
13 deliberate and the deliberation may form a position  
14 that we would like to follow-up immediately with a  
15 letter or we may defer. We have yet to decide.

16 But we certainly have time on the agenda  
17 to come back and see if we can't better understand all  
18 of this before we would conclude our deliberation at  
19 the December meeting.

20 MEMBER RICCARDELLA: It seems to me that  
21 the real issue at hand is the COMSECY paper and the  
22 nonconcurrence --

23 MEMBER STETKAR: Speak up a little bit,  
24 Pete, because we're not --

25 MEMBER RICCARDELLA: -- the COMSECY

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1 letter and the associated nonconcurrence, were does the  
2 committee lie on that issue? I think, you know, a  
3 review of the other two topics would be nice,  
4 particularly for the members who aren't here but it  
5 seems to be somewhat redundant.

6 CHAIRMAN SCHULTZ: Okay. Thank you.  
7 Ron?

8 MEMBER BALLINGER: Yes, I think I agree  
9 with Pete. And the presentations have been very, very  
10 informative. We've had a bunch of other discussions  
11 about that.

12 And so, I think that the issue of the  
13 dividing line between integrated assessment and what  
14 the plan is now and the pros and cons in much more detail  
15 I think I'd like to hear about.

16 CHAIRMAN SCHULTZ: All right. Thank you.  
17 Dick?

18 MEMBER SKILLMAN: I agree with Pete and  
19 with Ron, but I actually have a few additional thoughts.

20 First of all, I think the presentations  
21 yesterday and today have been thorough and on target  
22 for what we need to consider over the course of the next  
23 several weeks. So, I appreciate and thank the  
24 presenters and all of the work that went into those  
25 presentations.

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1                   As I sit here at the end of this meeting,  
2 I've got a couple thoughts.

3                   Number one, protection needs to be at a  
4 higher priority than mitigation. Protection needs to  
5 be at a higher priority than mitigation.

6                   We need to make clear in the documentation  
7 that it's okay to change the design basis, whatever that  
8 might be, at least for some plants.

9                   The public needs to have confidence that  
10 the NRC is the agency commissioned to protect their  
11 health and safety is able to do that. And if we fail  
12 to follow through, in other words, if we water down the  
13 NTTF recommendation for an integrated assessment, that  
14 will be seen as diminishment of all of that effort that  
15 went in to considering the public's protection after  
16 Fukushima. I think that will create problems that we  
17 will wish we hadn't allowed if we don't require an  
18 integrated assessment.

19                  So, I think the passion around the  
20 integrated assessment is appropriate and valuable.

21                  Thank you.

22                  CHAIRMAN SCHULTZ: Thank you. Harold?

23                  MEMBER RAY: Well, I've commented  
24 throughout the time as many others have as well. I  
25 agree with most all of what Bill Shack said as I

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1 understood it.

2 The one thing I'll comment and then pass  
3 on to others that I found disturbing this afternoon was  
4 the proposition that doing an integrated assessment  
5 could be a distraction because we have limited  
6 resources and the benefits of doing aren't measured by  
7 the consequences of the distraction it would  
8 constitute.

9 That's something that I find -- the idea  
10 that we have a potential negative impact by doing a  
11 thorough assessment that we're referring to is an  
12 integrated assessment, I guess, is something I can say  
13 I find real concern with. And I think we have to  
14 disregard that threat and we want to make a judgment  
15 about the need to do what would be involved to  
16 systematically define what the hazards are and then  
17 disposition them.

18 And I happen to be in the camp that says  
19 we can take reasonable time to do that because I think  
20 that a proper answer in due course is far better than  
21 a rushed answer which so far, we've been consumed by  
22 it seems.

23 So, those are the things that are on my mind  
24 at the moment. In terms of answering your question  
25 about what we should emphasize at the full committee

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1 meeting, I wouldn't disagree with anything that's been  
2 said so far. I think we ought to focus on the most  
3 important things first.

4 CHAIRMAN SCHULTZ: Thank you. Dennis?

5 MEMBER BLEY: Yes, I've given my comments  
6 on FLEX earlier on several occasions.

7 I'm going to make three comments about  
8 prevention and mitigation and then get on to the topic  
9 of the real need for our December meeting.

10 You know it's always better to prevent of  
11 course, but if it happens, we want to be able to  
12 mitigate. So there needs to be a balance.

13 What was described -- discussed yesterday  
14 was those concepts often get mixed up because anywhere  
15 along the scenario, you can think about preventing  
16 getting to that point and mitigating having been at that  
17 point for the rest of the day.

18 A lot of times, we talk about prevention  
19 of core damage and mitigation of release. If we're  
20 talking that, then all of the FLEX stuff as designed  
21 is preventive strategies rather than the mitigative  
22 strategies they're called, because that's what they're  
23 aimed at doing. Enough of that.

24 I can't -- I think we have to write a letter  
25 but that's not my decision. I don't know that should

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1 be in it until we get a look at the COMSECY and I hope  
2 we really do get it by the first of the week because  
3 if we don't, we won't have time to really digest it.

4 I've started looking back through the ISG  
5 on integrated assessment trying to understand exactly  
6 what that's about and what degradedness of it is and,  
7 you know, on the surface, I get a little confused about  
8 if, in fact, there's a reasonable graded approach why  
9 we need to back away from that at all for anything.

10 One thing I think I really want to hear at  
11 the full committee meeting is a little more from  
12 industry about what they're doing with respect to  
13 playing their FLEX against these reevaluated hazards  
14 and how they become convinced that they'll get the  
15 benefit that they think they'll get.

16 Just a side comment, the deputy director's  
17 slides, I think the folks on the panel could have used  
18 those slides and marked their points from them. I mean  
19 everybody's focused on kind of doing the right thing.  
20 But I think we ought to spend some time really  
21 understanding this distinction of what's in the COMSECY  
22 that we haven't seen yet, the final one and these  
23 questions about the integrated assessment because I'm  
24 like most of our colleagues, the integrated assessment  
25 seems like it's needed.

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1           We have to look at whatever's at the plant  
2           and that includes FLEX against these new reevaluated  
3           hazards in a way that we're convinced we're good with  
4           them whether they're in the -- brought into the design  
5           basis or not. We've got to be sure that they do what  
6           we think they're going to do. That's more than enough.

7           CHAIRMAN SCHULTZ: Thank you. John?

8           MEMBER STETKAR: I don't have anything to  
9           add. Everything's been said already, I'm not going to  
10          repeat.

11          Regarding conduct of the full committee  
12          meeting, I'll go out on a limb and say I actually think  
13          that it would be useful if the staff could exercise some  
14          restraint, you know who you are, to actually have a  
15          brief presentation on the rule, but not the whole rule,  
16          only sections B, C and D of the rule, that's the meat  
17          of the rule.

18          And the only reason for that is it shows  
19          in a rule making perspective how some of these notions  
20          that we've been discussing in the context of the yet  
21          to be presented COMSECY might manifest themselves in  
22          actual rule making -- proposed rule making language.

23          And I think that might be useful at least  
24          for the three members who aren't here or at least a  
25          refresher after we look at the document that we're

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1 hopefully going to receive.

2 So, I'd advocate carving out not a big  
3 piece of time, ten minutes perhaps, because it's only  
4 three little sections. We don't care about, you know,  
5 the planning, we don't care about all the nuances of  
6 change control. But I'd recommend that.

7 CHAIRMAN SCHULTZ: I think we would assume  
8 those are going to be covered very nicely, so I would  
9 agree and we've got a good presentation on those and  
10 that would be of the most interest especially in concert  
11 with the other issues that we want to address.

12 MEMBER STETKAR: That's a little  
13 different from the need to saying having them available  
14 to answer questions. So, I think --

15 CHAIRMAN SCHULTZ: Yes, no, that focal  
16 point is appropriate that we came to it.

17 Joy?

18 MEMBER REMPE: I think I agree with my  
19 colleagues about the need for an integrated assessment.  
20 But, I guess I'd like to have a little more information.

21 For example, we heard today that one  
22 integrated assessment's been done and could we have  
23 some information and see what happened with that one  
24 integrated assessment? Because I'm not aware of it and  
25 I'd like to have that.

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1           There were several ML -- while I'm asking  
2           for more information, there's a couple of the ML  
3           documents that were mentioned by the staff today that  
4           I'd appreciate getting copies of before the meeting.

5           In addition to the COMSECY, the updated  
6           version of it, I believe I heard today that the rule  
7           has changed, too, the draft rule and if we could have  
8           an up to date version, I believe Bill mentioned  
9           that -- oh, that sentence is gone or some one did in  
10          the staff. And so, if we could have an updated version  
11          for that, I'd like to see it, too.

12          And I think there's been enough discussion  
13          about the COMSECY that I would tend to agree with Dennis  
14          that I do hope we decide that there's some points that  
15          we should mention in a letter.

16          MEMBER STETKAR: Can I interrupt? I'm  
17          sorry to keep coming back on this but one thing  
18          important for our meeting, certainly if we do write a  
19          letter or more than one letter, is we will need to refer  
20          to specific documents.

21          We do not refer U-graphs or oral  
22          statements, so the staff needs to exercise discipline  
23          and get things to us because we're not going to write  
24          letters that are based on, well, we heard in some  
25          discussion this testimony.

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1                   MEMBER BALLINGER: By the way, speaking of  
2 ML numbers, one of them has to be wrong. When I go  
3 through things, I'm accumulating them as we go along  
4 and this ML 14303A465 comes up with zero. So, it's one  
5 of the letters that was -- that I think you mentioned.

6                   MEMBER STETKAR: They'll get them to us.

7                   MEMBER BALLINGER: Yes, we'll get them.  
8 I'm just saying that -- I dialed it in and --

9                   MEMBER STETKAR: Sorry, Joy, I just wanted  
10 confidence in the way that we define them.

11                  CHAIRMAN SCHULTZ: Well, just to be  
12 clearer, because I think John is always very clear, but,  
13 you know, the staff should provide to Mike Snodderly  
14 the references that we've discussed in the context  
15 here. We'd really appreciate that.

16                  MEMBER STETKAR: And the documents which  
17 you want the Advisory Committee on Reactor Safeguards  
18 to review.

19                  CHAIRMAN SCHULTZ: Mike?

20                  MEMBER CORRADINI: People have already  
21 gone through a lot of things. I guess I thank the  
22 industry and the staff for their presentation.

23                         I guess I'm more struggling about what to  
24 do and when to do it. So, it seems to me that if there's  
25 letters going to be written in December, it's got to

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1 be about the COMSECY, maybe bring the rule in but only  
2 to the extent you answer some of the questions the staff  
3 was asking which is, do you want a rule?

4 I think UCS suggested that the filtered  
5 vent -- the hardened filtered vent be rolled into the  
6 rule. So I think we ought to have some opinion whether  
7 it should stay as it is or it should -- and separate  
8 it from the filter vent or not.

9 I think we ought to say something about  
10 whether we want SAMGs in it or not. Staff also asked  
11 us that.

12 Except for that, I'm not sure if there's  
13 much more to talk about the rule because we haven't seen  
14 the guidance.

15 On the COMSECY, it seemed to me that if  
16 you're going to have so little time in front of all of  
17 us again plus the three members that aren't here, I  
18 would have the staff explain exactly what they  
19 intended, the COMSECY staff, I can't -- we'll call it  
20 the current COMSECY staff -- what they intend to mean  
21 if they're going to excuse industry from an integrated  
22 assessment.

23 Conversely, if industry's going to be  
24 asked to talk, it seems to me they ought to focus their  
25 talk on why it's inappropriate to do the integrated

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1       assessment, what's so bad about doing it and then  
2       that'll help us come to some decision as to where to  
3       go with it.

4                   I think we understand from the two  
5       afternoon speakers as to what their concerns were and  
6       I assume you're have some sort of summary of that. I'm  
7       not exactly sure how you want to handle that.

8                   CHAIRMAN SCHULTZ: We will handle it,  
9       we'll have the opportunity for them to present them.

10                  MEMBER CORRADINI: But it seems to me  
11       unless we do that, we're not going to focus on soon  
12       enough of that.

13                  And the only other thing after that is I  
14       think Bill said it, I'm not exactly sure how he said  
15       it, I think we want to decide what ought to be in the  
16       COMSECY and given we've decided that we want or don't  
17       an integrated assessment or some variation of it, what  
18       we do with it after the fact is for a later discussion.  
19       There's no point in dealing with it now because we'll  
20       just argue about it.

21                  And I think that the Commission would  
22       rather hear about what ought to be in it and what ought  
23       not to be in it and why. So, that's it.

24                  CHAIRMAN SCHULTZ: Appreciate that.

25                  Thank you for your comments and we will

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1 work on making sure that the pieces that we've discussed  
2 around the table, I didn't hear anything I would  
3 disagree with in terms of the preparation for the  
4 meeting.

5 So, Mike, we'll work together to talk to  
6 the participants and make sure that their focus is  
7 appropriate.

8 MEMBER CORRADINI: And one of the things,  
9 it doesn't -- about this topic, but if there's we can  
10 jettison from the December meeting so we have more time  
11 because, to me, this is a very important -- I know, I  
12 see the chairman's already grumbling at me.

13 CHAIRMAN SCHULTZ: That's because he's  
14 sorry he didn't make it a range.

15 MEMBER STETKAR: It's because we've  
16 already published the agenda and -- no?

17 CHAIRMAN SCHULTZ: The agenda will stay.

18 MEMBER RAY: There is one thing, though,  
19 that John and I have touched on, I don't want to say  
20 we've agreed --

21 MEMBER STETKAR: In terms of what we  
22 review, we as a committee, decide what letters we feel  
23 we need to write. But in terms of terms of topics for  
24 presentations, we're locked in --

25 MEMBER CORRADINI: Okay. Fine, fine,

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1 fine.

2 MEMBER STETKAR: -- to those time frames.

3 But we have B

4 MEMBER CORRADINI: I don't want to deal  
5 with leadership, leadership --

6 CHAIRMAN SCHULTZ: As compared to other  
7 meetings, we've allocated good time to this discussion  
8 already and it's in the published agenda that we need  
9 to stick to.

10 MEMBER CORRADINI: All right, thank you.

11 CHAIRMAN SCHULTZ: We don't have the same  
12 latitude that we've had today and yesterday.

13 In any case, thank you for your discussion.  
14 I would like to close the meeting by, again, recognizing  
15 the presentations that we have had from the staff, from  
16 industry, the comments that we've received from members  
17 of the public. They have been very well developed,  
18 very well presented and they are really helpful for our  
19 deliberations. I appreciate that very much.

20 I also want to thank Mike Snodderly  
21 arranging the two day meeting, especially on a topic  
22 like this with as many participants as we have had.  
23 It's been outstanding work and I really appreciate,  
24 Mike, you pulling this together for us and you've  
25 already heard the assignments for the full committee

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1 meeting, so we'll --

2 MEMBER RAY: Why don't you thank me for  
3 putting on off the AP1000 meeting?

4 CHAIRMAN SCHULTZ: Of course, Harold.

5 I also want to thank Kathy Weaver who also  
6 participated in preparing this meeting. She wasn't  
7 able to attend today which was her focus because she's  
8 on travel. But she has really helped with this and will  
9 help us also with regard to the full committee meeting.  
10 So I wanted to do that officially as well.

11 With that, I will move forward to close the  
12 meeting.

13 (Whereupon, the above-entitled matter  
14 went off the record at 4:44 p.m.)  
15  
16  
17

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# Mitigation of Beyond-Design-Basis Events (MBDBE) Proposed Rulemaking

Advisory Committee on Reactor Safeguards  
Fukushima Subcommittee

November 21, 2014

# Background

- Consolidated rulemaking (now MBDBE proposed rule)
  - ACRS full committee on July 10, 2014
  - ACRS subcommittee on June 23, 2014
- Previous ACRS interactions on Station Blackout Mitigation Strategies (SBOMS):
  - ACRS full committee – June 5, 2013
  - ACRS Regulatory Policies and Practices subcommittee – April 23, 2013
  - ACRS Regulatory Policies and Practices subcommittee – December 5, 2013
- Previous ACRS interaction on the Onsite Emergency Response Capabilities Rulemaking:
  - ACRS Plant Operations and Fire Protection subcommittee – February 6, 2013
- Regulatory bases and public interactions:
  - Station Blackout Advance Notice of Proposed Rulemaking (ANPR) Issued – March 20, 2012
  - Station Blackout Mitigation Strategies Final Regulatory Basis issued – July 23, 2013
  - Onsite Emergency Response Capabilities ANPR- April 18, 2012
  - Onsite Emergency Response Capabilities Final Regulatory Basis- October 15, 2013

# Background

- Consolidation of post-Fukushima regulatory efforts:
  - COMSECY-13-0002: Consolidates 4 and 7 into SBOMS rulemaking
  - COMSECY-13-0010: Consolidates EP-related with EA-12-049 implementation
  - SECY-14-0046 enclosure 6: Consolidates SBOMS and Onsite Emergency Response capability rulemakings
- Scope of proposed rulemaking as it relates to originating Near-Term Task Force (NTTF) recommendation:
  - 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 EA-12-049)
  - Includes NTTF 9.4 (ERDS modernization)
- In terms of post-Fukushima already underway:
  - Makes generically-applicable EA-12-049 and EA-12-051
  - Addresses staffing and communications 10 CFR 50.54(f) request
  - May also address feedback from NTTF 2.1 (flooding)

# Proposed Rule Language

## Paragraph (a) - Applicability

- Applicability
  - Current operating reactors
  - New reactors
  - Decommissioning reactors
- All requirements apply to both current and new reactor licensees and applicants
  - Additionally: New reactors have an additional assessment requirement (forward fit)
- Decommissioning provisions:
  - Once fuel is permanently removed from the reactor , no reactor requirements
  - Once irradiated fuel is removed from the spent fuel pool, all requirements cease

# Proposed Rule Language

## Paragraph (b) – Integrated Response

- Integrated Accident Response Capability
  - Beyond-design-basis external event mitigation
    - Would make 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
    - Regulation would require SAMGs
    - No additional equipment requirements

# Proposed Rule Language

## Paragraph (b) – Integrated Response

- Integrate with Emergency Operating Procedures(EOPs)
  - Would not revisit any 1980s EOP work or requirements
- Supporting staffing and command and control
  - Both staffing and command and control should be in place after EA-12-049
  - 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
  - Would make EA-12-049 equipment requirements generically applicable
  - Would make EA-12-051 spent fuel pool level instrumentation requirements generically applicable
- Training
  - Training of personnel for activities not already addressed
  - Systems approach to training
  - Expect most training already addressed as part of EOPs and EA-12-049 implementation
  - New training should be in the SAMG area

# Proposed Rule Language

## Paragraph (d) – New Reactor Requirements



- Assessment requirements:
  - Only applies to applicants listed in paragraph (a)(4)
  - Would require a design-specific assessment of the effects of an extended loss of all ac power concurrent with a loss of normal access to the ultimate heat sink
  - Based on the results of the assessment, the applicant would incorporate into the design those features that:
    - Minimize reliance on human actions
    - Enhance coping durations
    - Demonstrate ability to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities
- Intent:
  - Implement the Commission’s advanced reactor policy statement
    - “...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”
  - New reactors would be better able to address effects of extended loss of ac power

# Proposed Rule Language

## Paragraph (f) Drills and Exercises

### Paragraph (g) – Change Control

- 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
  - Multi-source term requirements are incorporated directly into current Appendix E
  - New Section VII requirement for staffing and communications
  - Technology-neutral ERDS
- Application requirements
  - Submittal information to support part 50 and part 52 applications for new reactors
- Implementation: Compliance dates, will use the Cumulative Effects of Regulation (CER) process to inform establishment of dates
  - Change control
  - Training
  - Command and control, staffing
  - SAMGs
  - Guideline integration
  - Equipment requirements
  - Multi-source dose assessment

# Backfit Considerations

- The MBDBE rule has different supporting backfit bases:
  - Proposed rule requirements are severable
  - EA-12-049 and EA-12-051 requirements are not backfits
  - All other requirements need justification under Part 50 backfitting provisions (operating reactors) and Part 52 issue finality provisions (new reactors) are “forward fits”
    - Items supporting 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 (forward fit)
    - Technology-neutral Emergency Response Data System (ERDS) remove specification of technology, no backfit

# SAMGs Backfit

- 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 analysis: drawing conclusions from recent Mark I and II CPRR effort
  - Measuring the benefit to public safety of strategies for Mark I and II plants implemented after core damage – “SAMGs” for Mark I and II
  - Quantitative results: High level conservative estimate is over an order of magnitude below the Quantitative Health Objectives (QHOs)
- Staff is proposing that Commission issue proposed MBDBE rule for comment with SAMGs as requirements
  - Allow stakeholder feedback to inform final decision

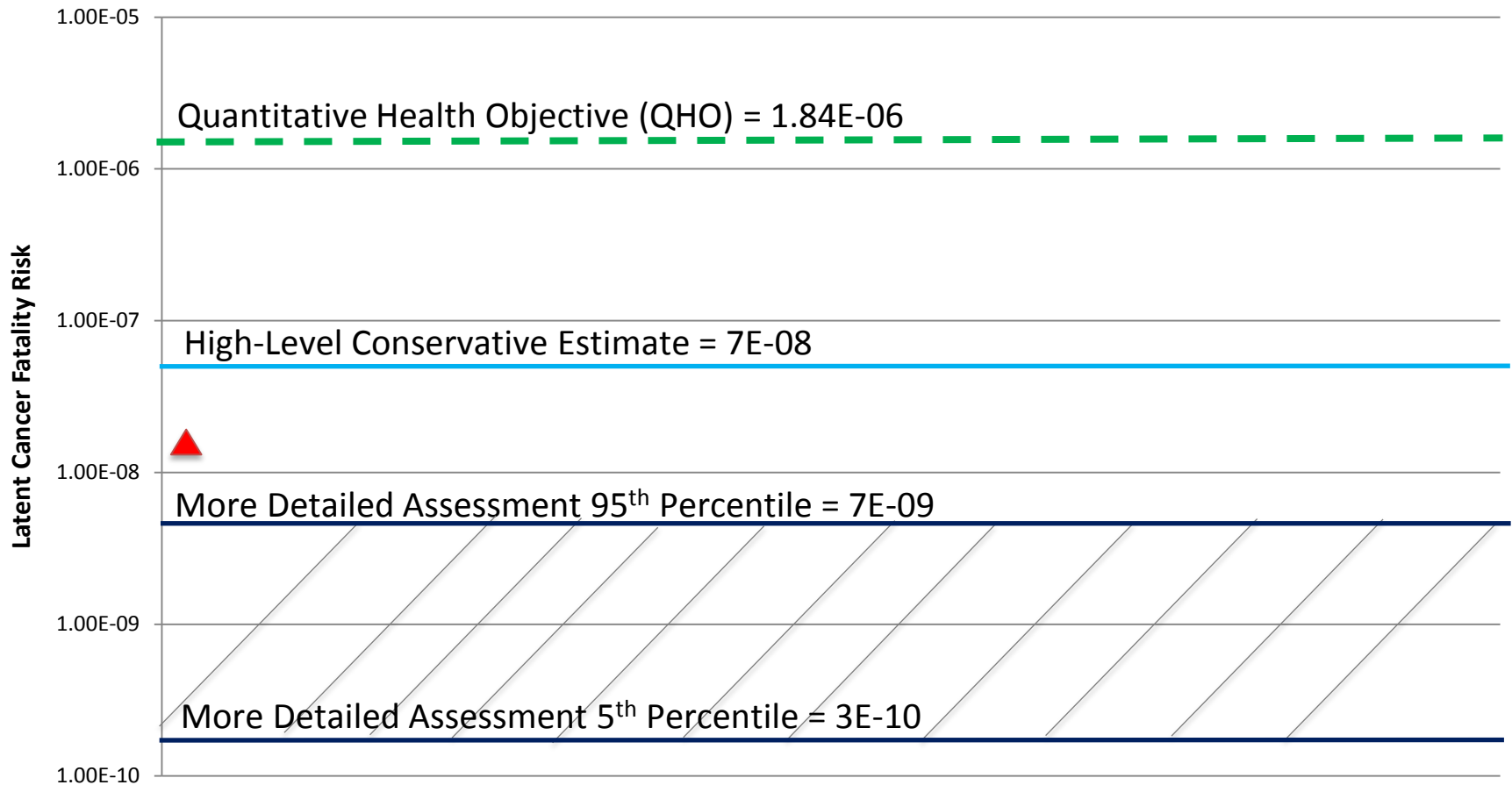
# Draft Regulatory Guidance

- DG-1301 “Flexible Mitigation Strategies for Beyond-Design-Basis External Events”
  - Current draft guidance endorses NEI 12-06 rev 0 with clarifications
  - NEI is revising NEI 12-06 to reflect feedback and lessons-learned from implementation of EA-12-049 to develop rev 1
  - Include guidance for new reactors assessments (paragraph (d))
- DG-1317 “Reliable Spent Fuel Pool Instrumentation”
  - Would endorse NEI 12-02 with exceptions and clarifications
- DG-1319 “Enhanced Emergency Response Capabilities for Beyond-Design-Basis Events”
  - Would endorse NEI 12-01 and NEI 13-06
  - Considering endorsement of NEI 14-01
    - Not an endorsement of Owners Group SAGs

# Status and Path Forward

- Current focus:
  - Completing the proposed rule package
  - Begin concurrence in early December
  - Scheduled to deliver the proposed rule to the Commission by Dec 19, 2014
- Future ACRS interactions
  - Full committee – December 2014 (proposed rule)
  - Full committee – TBD (final rule)

# Results Suggesting that No CPRR Rulemaking Alternative can be a Substantial Safety Enhancement



 = Expedited Spent Fuel Pool (conservative estimate)

# Integration of Mitigating Strategies and Reevaluation of Flooding Hazards

Advisory Committee on Reactor Safeguards  
Fukushima Subcommittee  
November 21, 2014

# Background

- Presentation to ACRS Full Committee on October 3, 2014
- Draft White Paper  
(ADAMS Accession No. ML14314A063)
- Public Meetings & Letter Dated November 4, 2014 from Nuclear Energy Institute  
(ADAMS Acc. No. ML14309A544 )

# Discussion

- Requesting Commission affirm the following:
  - 1) Licensees for operating nuclear power plants need to address the reevaluated flooding hazards from Recommendation 2.1 within their mitigating strategies for beyond-design-basis external events (Order EA-12-049 and related MBDBE rulemaking)

Basis: to ensure that some measures are taken to address reevaluated flooding hazards

Impact: Affects rule language and subsequent implementation of the regulation

# Discussion

- Requesting Commission affirm the following:
  - 2) Licensees for operating nuclear power plants may need to address some specific flooding scenarios that could significantly damage the power plant site by developing targeted or scenario-specific mitigating strategies, possibly including unconventional measures, to prevent fuel damage in reactor cores or spent fuel pools

Basis: To ensure Commission is aware that some scenario-specific mitigating strategies may involve unconventional measures

Impact: May affect rule language, would affect subsequent implementation of the regulation

# Discussion

- Requesting Commission affirm the following:
  - 3) The staff should revise the Recommendation 2.1 flooding assessments and integrate the Phase 2 decision-making into the development and implementation of mitigating strategies in accordance with Order EA-12-049 and the related MBD BE rulemaking.

Basis: Best overall results involve an appropriate compromise between information gathering and analysis and actual, timely regulatory actions to achieve safety improvements

Impact: No affect on rule language, would affect current plans for integrated (total plant) flooding assessments

# Status and Path Forward

- Current focus:
  - Issuance of COMSECY
  - Scheduled to the Commission by November 28, 2014
- Future ACRS interactions
  - Full committee – December 2014 (final COMSECY)

# Industry Perspective on Draft Mitigating Beyond Design Basis (BDB) Events Rule

Bryan Ford

Senior Manager - Regulatory Assurance  
Entergy Nuclear

November 21, 2014 • ACRS Meeting

# Industry Perspective on BDB Rule

- Positives
  - Right topics addressed with “high-level” language
  - Supports use of industry-developed guidance
  - Reflects the significant amount of industry work performed to enhance BDB event response capabilities since Fukushima
    - Codifies existing Order requirements
  - Reasonable approach to SAMGs

# Industry Perspective on BDB Rule

- Areas for improvement
  - Adds requirements to decommissioning plants that are beyond those intended by current orders and beyond the requirements for operating plants
    - Current permanently shutdown plants were not required to implement EA-12-049/051
    - “Secondary containment”
    - Should need to maintain one spent fuel pool refill strategy/capability for a limited time

# Industry Perspective on BDB Rule

- Areas for improvement
  - Equipment section is captured in guidance, and better addressed at the guidance level
    - Rule element (b)(1) would appear to subsume the requirement to have readily available, functional equipment to implement a mitigating strategy
  - With respect to multi-unit sites, ensure that rule wording is consistent with EDMG/B.5.b response requirements from previous orders/guidance

# Industry Perspective on BDB Rule

- Change controls for BDB response capabilities
  - Need to define a workable and predictable change control process (at the guidance level)
    - Address the interface with change controls from other programs – fire protection, emergency preparedness, security, etc.
    - Process for obtaining NRC approval of a proposed change (i.e., prior to implementation) in cases where such approval is necessary

# Reevaluated Hazards

- Major focus has been responses to NRC orders and the work associated with the NRC requests for information on external hazards
- Next major activity is integration of mitigating strategies with reevaluated external hazards
- Staff position not included in draft rule
- Industry position stated in NEI letter to NRC Chairman (dated 11/4/14)

# Development of Mitigating Strategies

- Mitigating strategies were developed using a consequence-based approach
  - Assumed an unspecified BDB external event causes a loss of all AC power and access to ultimate heat sink
  - Credit taken for other installed systems or components designed to meet design basis external hazards
- Design basis external hazards governed the development of the mitigating strategies (e.g., for connections, storage locations, etc.)
- Recognized that these assumptions and strategies may not provide the optimum plant-specific response in consideration of updated hazard information

# Industry Approach to Reevaluated Hazards

- A key difference between the reevaluated hazards assessment and the development of the mitigating strategies is the “initial conditions”
  - Instead of an assumed consequence from an undefined event, each site will have a set of specific hazard conditions
  - Assessments can determine hazard impacts on key equipment, and availability of permanent plant equipment, to support a new hazard-specific mitigating strategy, if needed

# Industry Approach to Reevaluated Hazards

- Review the impact of reevaluated external hazards information on mitigating strategies
  - Assure that the strategies can still restore or maintain key safety functions in light of the new hazard information, OR
  - Develop a new hazard-specific mitigating strategy or a Targeted Hazard mitigation strategy that can be implemented until recovery actions are initiated

# Staff Concerns Regarding White Paper Titled “Integration of Mitigating Strategies for Beyond-Design-Basis External Events and the Reevaluation of Flooding Hazards”

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Presentation to ACRS, November 21, 2014

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# Staff Concerns with White Paper

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1. It departs from the intent of NTTF Recommendation 2.1.
2. It departs from previous Commission and Congressional direction.
3. It deviates from the implementation process currently established for reevaluating flooding hazards and plant response.
4. It may create regulatory inconsistencies.
5. **It presumes a conclusion that adequate protection has been achieved and, in most cases, additional regulatory actions are either not expected or not warranted.**
6. **It does not elicit sufficient information to support a staff conclusion regarding the need for additional regulatory action.**
7. It does not incorporate lessons learned from operating experience.
8. It fails to distinguish between the intended purpose of the integrated assessment and activities for mitigating strategies and does not recognize the differences between guidance associated with the two activities.
9. It does not adequately distinguish between consequential floods and the reevaluated flood hazard.
10. It is vague in its description of “targeted mitigating strategies.”
11. It is not responsive to external recommendations by regarded experts.
12. It creates inconsistency regarding the manner in which different external hazards are treated by NRC under Recommendation 2.1.

# Primary Safety Concerns of Staff

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## **White Paper fails to address important safety issues**

- White Paper approach will not systematically consider flooding protection of safety-related equipment (e.g., EDGs, ECCS)
- White Paper approach results in non-safety-related mitigating strategies as the **only** defense for reevaluated flooding hazards
  - Reevaluated flood hazards are based on present-day guidance and methods

## **Without the systematic integrated assessment (JLD-ISG-2012-05), we cannot:**

- Understand the impact of reevaluated flood hazard on plant safety
- Understand potential vulnerabilities
- Determine whether protection is adequate
- Identify safety enhancements and determine their significance
- Gather information to support a decision to modify, suspend, or revoke a license

## **No basis for confidence in undefined approach advocated by White Paper**

- Relies on an unspecified staff process to initiate new regulatory actions
- Assumes NRC already knows which plants will require additional action

# Questionable Justifications

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## **Justification for White Paper approach:**

- Assumed effectiveness
- Efficiency and resources
- Industry consensus
- Time frame

## **However:**

- Justifications have neither technical nor safety basis
  - Inconsistent with a culture emphasizing safety over competing goals.
- White Paper may be inconsistent with adequate protection requirements
  - Some regulatory actions/processes have been subsumed by R2.1 and may need to be revisited
  - For adequate protection issues, NRC is not permitted to consider cost
  - Licensees have not shown adequate protection for flooding at some sites
- Claimed efficiency under White Paper approach comes at significant cost
  - Important information will not be available due to elimination of integrated assessment

# Integrated Assessment

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- With the **systematic review** of all plants with increased flooding hazards via the integrated assessment we **will know**:
  - The extent of flooding issues at plants with known issues
  - The total number of plants that may have issues (including plants not yet identified)
  - Whether all plants can demonstrate adequate protection under flooding scenarios
  - Whether there are efficient and effective flood protection measures (e.g., sandbags to protect EDG building) that are cost-justified, substantial safety enhancements
  - **Information needed to support regulatory decisions**

# Licensed Plant Examples

# Plant 1

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## **Current licensing basis :**

- Nominal river level is normalized level of 0 ft
- Site grade elevation is normalized elevation of 13 ft
- 100-year flood normalized elevation is 10.3 ft
- Design basis flood (PMF) is normalized elevation of 23 ft

Therefore: under the current design/licensing basis, the site is protected from a design basis flood by a full set of safety grade ECCS and onsite electrical safety grade distribution system (i.e., diverse, redundant, single failure proof).

## **Reevaluated hazard (based on present-day licensing criteria to site new reactors):**

- More than 20 feet greater than design basis
- Disables the ECCS and Class IE electrical distribution system

## **Key questions:**

- Are mitigating strategies appropriate for reevaluated hazard (including less severe but more frequent events)?
- Are there efficient/effective protection options?
- Should we consider changing the design or licensing basis?
- Is this an adequate protection issue?

**Integrated Assessment is needed to answer these questions.**

# Plant 2

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## Current licensing basis

- Nominal river level is normalized level of 0 ft
- Site grade is a normalized elevation of 22.5 ft
- Original design basis flood per UFSAR is normalized elevation of 17 ft. (200-year flood, 385,000 cfs )
  - Full set of safety grade ECCS (i.e., diverse, redundant, single-failure-proof) remains available because flood is below site grade
- Later revisions resulted in normalized elevation of ~29 ft
  - “There are no incorporated/exterior or temporary flood protection features designed to protect the site against a flood greater than [plant grade elevation].”*
  - Reactor shutdown is followed by reactor disassembly and cavity flood up
  - “All station loads are de-energized and all plant doors are opened ...”
  - Gasoline driven pumps provide makeup to pools and reactor
  - May be similar to “targeted strategies” described in White Paper

## Reevaluated hazard (based on present-day licensing criteria):

- PMF normalized level slightly higher than 29 ft (1,200,000 cfs)

## Key questions:

- Are mitigating strategies appropriate for reevaluated hazard (including less severe but more frequent events)?
- Are there efficient/effective protection options?
- Should we consider changing the design or licensing basis?
- Is this an adequate protection issue?

**Integrated Assessment is needed to answer these questions.**

# Plant 3

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## **Current licensing basis**

- Nominal river level is normalized level of 0 ft
- Site grade is normalized level of 25 ft (this is 9 ft. above 1000-year flood)
- PMF is normalized elevation of 34 ft
  - Elevation would be reached in ~12 days
  - Elevation would be sustained for ~11 days
- Licensee flood protection procedure requires construction of a ring levee to protect the plant.
- If construction of the levee is not completed or the levee fails (neither of which are low probability events), station blackout will occur.
- Backup is to run RCIC without dc power.

## **Reevaluated hazard (based on present-day licensing criteria):**

- PMF has increased

## **Key questions:**

- Are mitigating strategies appropriate for reevaluated hazard (including less severe but more frequent events)?
- Are there efficient/effective protection options?
- Should we consider changing the design or licensing basis?
- Is this an adequate protection issue?

**Integrated Assessment is needed to answer these questions.**

# Supplemental Information: Summary of Specific Concerns

# 1—Departs from the Intent of NTTF

## Recommendation 2.1

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Task Force recommends that the Commission direct the following actions to **ensure adequate protection** from natural phenomena...

NTTF 2.1    Order licensees to reevaluate the . . . flooding hazards at their sites against current NRC requirements and guidance, and if necessary, update the design basis and SSCs important to safety to protect against the updated hazards. ...

- NTTF recognized that flooding hazards must be accurately characterized to determine whether it is necessary to
  - update the design basis
  - modify SSCs important to safety
- For flooding that was not considered in the licensed design, the white paper proposes to **substitute** mitigation for protection in all cases.
- The white paper **assumes** that the mitigation strategy will be adequate and **eliminates** the assessment required to validate that assumption.

# 2—Departs from Commission and Congressional Direction

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- White paper does not clearly describe previous direction
- White paper does not clearly acknowledge that the proposed path forward represents a significant deviation from previous direction

SRM on SECY-11-0093

SRM on SECY-11-0124

SRM on SECY-11-0137

SRM on SECY-12-0025

Consolidated Appropriations Act

NTTF Report

“Identify actions...to address plant-specific vulnerabilities”

NTTF Prioritization

“....necessary to confirm the adequacy of the hazards assumed for U.S. Plants and their ability to protect against them.”

“The [NRC] shall...require licensees to reevaluate the...flooding ...hazard...The Commission shall require the licensees to update the design basis...if necessary.”

# 3—Deviates from Established Implementation Process

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## Current NTTF R2.1 implementation process:

- Phase 1: Information Gathering:
  - Stage 1: Hazard Reevaluation using present-day licensing criteria (i.e., present-day design basis methods)
  - Stage 2: Integrated Assessment if reevaluated hazard > design basis<sup>\*</sup>
- Phase 2: Regulatory Decisionmaking (e.g., change design or licensing basis)

The white paper does not:

- clearly articulate a sound basis, technical or otherwise, for the changes to the implementation process
- completely describe the consequences of the proposed changes to the implementation process

# 4—Creates Regulatory Inconsistencies

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The proposed path forward may lead to several regulatory inconsistencies:

1. The treatment of increased flooding hazards from dam failures may differ between:
  - sites for which there is ongoing regulatory activity that may lead to changes in the protection of the plant or other backfits
  - sites for which regulatory activity is not already ongoing
2. The treatment of new information about different flood mechanisms may differ.

Ex: NRC may treat new information about increased flooding hazards from dam failures (at some sites) differently than new information about increased flooding hazards from other mechanisms such as storm surge and local intense precipitation.

# 5—Prejudges Safety Conclusions

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- White paper prejudices the outcomes of Phase 2 of the implementation process for NTTF Recommendation 2.1
  - “. . . the NRC staff does not expect the reevaluated flooding hazards for most plants to affect the design-basis flood against which safety-related SSCs would need to be protected.”
- This approach may conflict with NRC’s obligation to continually assess whether there is adequate protection of the public health and safety

# 6—Insufficient Information To Support a Staff Decision

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White paper states:

- “Focusing the Phase 2 decisionmaking on mitigating strategies means that **the integrated (total plant) assessment in Phase 1 is no longer needed...**”  
and
- “There **may be** circumstances where the staff concludes that the flooding reevaluations warrant investigating the need for additional protection or mitigation beyond that provided by mitigating strategies..”

- A systematic evaluation of the impacts of the flood hazards from different flooding mechanisms on plant safety-related SSCs will not be performed.
- Staff cannot determine whether additional regulatory actions are needed regarding adequate protection or safety enhancements.
- Proposed approach is undefined and sufficient information **will not be** available to systematically know when to pursue further assessments.

# 7—Lessons Learned from Operating Experience Are Not Incorporated

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- Since 2010, there have been:
  - 6 actual flooding events
  - 9 identified flooding issues related to flood protection or flood mitigation
  - 6 non-cited violations or green findings related to flood protection or flood mitigation
  - 12 greater-than-green findings related to flood protection or flood mitigation
    - 1 notice of violation
    - 8 white findings
    - 3 yellow findings
- The integrated assessment was developed with knowledge of operating experience.
- The white paper approach would reduce or eliminate the assessment of plant response.

# 8—Differences Between Integrated Assessment and Mitigating Strategies Are Unclear

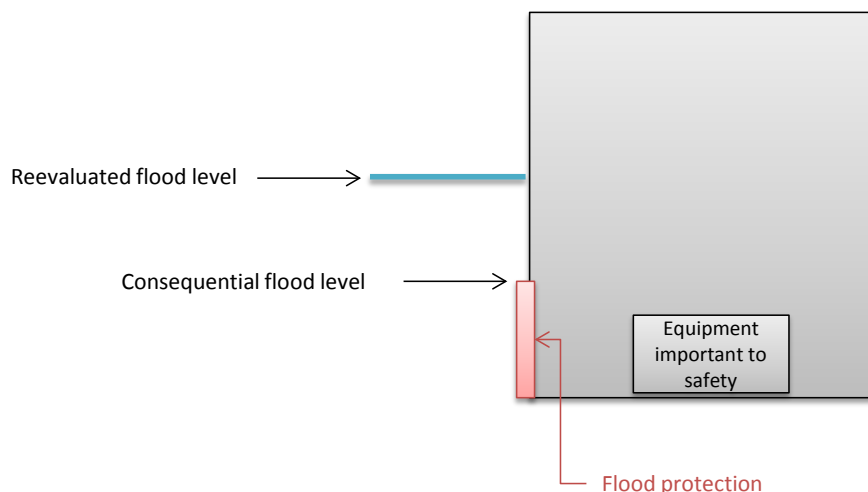
	Integrated Assessment	Mitigating strategies
Initiator	Flooding events (e.g., flood height, associated effects, flood event duration)	Extended loss of AC power and loss of normal access to ultimate heat sink
Purpose	Support decision to modify, suspend, or revoke license, if necessary	Provide additional defense in depth
Focus	Effects of flooding on total plant response, including safety-related SSCs	Effects of flooding on mitigating strategies equipment
Scope	Protection and/or mitigation,* as needed	Mitigating strategies only
Review criteria	Rigorous, systematic, and flood-specific assessment of total plant response. Supports regulatory decision regarding needs to change DB/LB.	Relies on considerable engineering judgment. Substantially different from the review of design basis accidents
Review criteria - Manual actions	Feasibility and reliability of manual actions, when used	Feasibility of “representative” manual actions
Outcomes	Confidence that site can withstand reevaluated flood hazard; information to support regulatory decision	Evaluate compliance with Order EA-12-049 to additional defense in depth

\*The term “mitigation” in the integrated assessment ISG is not synonymous with the term “mitigating strategies” used in the White Paper

# 9—Lack of Understanding of Consequential vs. Maximum Credible\* Flood

## \* Maximum Credible Flood $\equiv$ Reevaluated Flood

- NRC flood hazard regulatory guidance currently uses deterministic framework
  - Limited number of stylized event combinations used to develop estimates of “maximum credible” flooding hazard for each SSC important to safety
  - Such combinations are considered appropriate for establishing sufficiently severe flood for design purposes
- Operating reactors may be vulnerable to events that are smaller in magnitude than these “maximum credible” events
  - This insight is important to support regulatory decisionmaking
- White paper focuses on single maximum credible flood but does not address the importance of smaller events that still may be consequential to a site.



# 10—Vague Description of Targeted Mitigating Strategies

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- FLEX guidelines proposed by industry and endorsed by the NRC staff are *function-based*.
  - “The FLEX strategies are focused on maintaining or restoring key plant safety functions and are not tied to any specific damage state or mechanistic assessment of external events.” (from NEI 12-06)
- “[T]argeted mitigating strategies” as described in the white paper are described as *scenario-specific*.
  - Scenario-specific strategies are not addressed in
    - existing regulatory guidance related to mitigating strategies
    - NEI 12-06 (FLEX Implementation Guide)
    - JLD-ISG-2012-01 (Compliance with Order EA-12-049)
  - What triggers a targeted strategy is not specified.
- Integrated assessment ISG provides scenario-specific evaluation guidance that is flood-specific and systematic.

# 11—Responsiveness to External Recommendations

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- **NRC response to Government Accountability Office report**

“The NRC staff will evaluate the licensees’ responses to this request for information, and will determine whether additional regulatory actions are necessary to provide additional protection against the updated hazards.”

The White Paper reverses, without technical justification, the NRC position documented in response to a recent report from the Government Accountability Office.

- **National Academies of Sciences report**

“Failure of the plant owner...and the principal regulator...to protect critical safety equipment at the plant from flooding in spite of mounting evidence that the plant’s current design basis for tsunamis was inadequate.”

Despite key Fukushima-related observations from a National Academies of Sciences report, the White Paper reverses direction from NTTF recommendation.

# 12—Inconsistencies in the Treatment of External Hazards

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- Parallel implementation processes are being used for both seismic and flooding
- The white paper proposes significant changes to the implementation process for flooding
- The White Paper does not describe whether similar changes will be implemented for other external hazards
- It remains unclear why flooding hazards should be treated differently (and potentially less rigorously)
- The impacts of these inconsistencies have not been appropriately evaluated and could result in inefficiencies

# Supplemental information— Background

# Background: Mitigating Strategies

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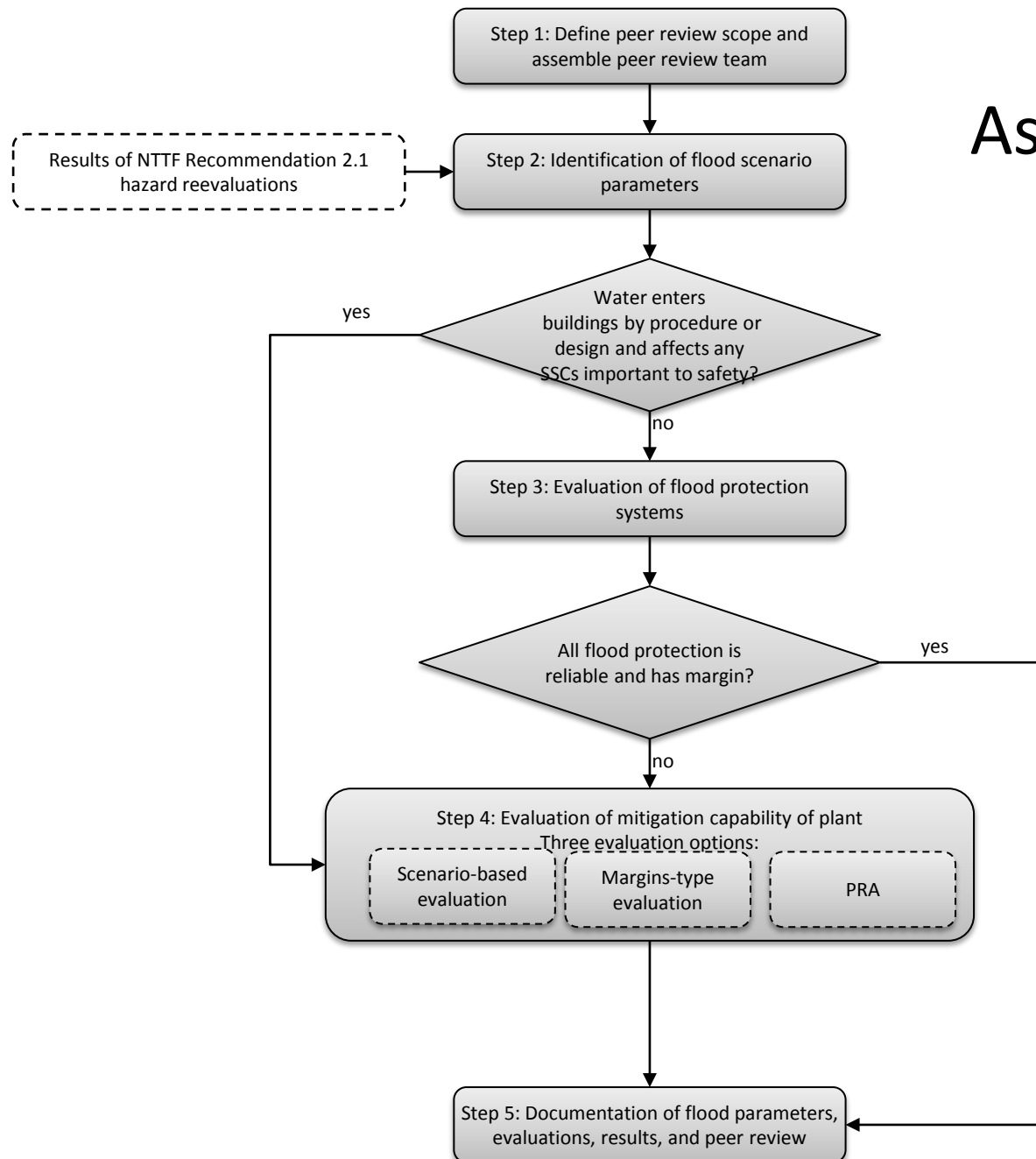
- Purpose of mitigating strategies:
  - Provide “strategies and guidance for **additional defense-in-depth measures** to supplement the capabilities of permanently installed plant structures, systems, and components that could become unavailable following a **beyond-design-basis [external] event**”
- Rigor of staff reviews:
  - Substantially less rigorous than the review of design-basis accidents
    - No diversity
    - No redundancy
    - Single failure criteria do not apply (and all plant equipment assumed available)
  - Relies considerably on engineering judgment and existing knowledge and expertise in determining the acceptability
- Level of review is commensurate with the intended use of mitigating strategies as a **defense-in-depth measures** for **events that are expected to be rare**.
  - Note: Consequential flooding is not rare at all plants.

# Background: NTTF R2.1

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- NTTF Recommendation: Ensure that plants have **adequate protection** from seismic and flooding hazards, consistent with the current state of knowledge and analytical methods
- Actions are required by Congress
- Implementation:
  1. Reevaluate flood hazards using present-day guidance and methods used to site new reactors (i.e., design basis methods)
  2. Perform integrated assessment (IA) if reevaluated hazard is not bounded by the design basis
    - IA involves:
      - Complete flood characterization
      - Flood protection evaluation
      - Mitigation evaluation (if needed)
  3. Staff makes regulatory decision (e.g., update the design basis, including protection of SSCs important to safety)
- Recognizes that operating reactors cannot be resited/redesigned
  - IA provides comprehensive evaluation
  - IA adequately informs a regulatory decision

# Integrated Assessment Concept



# Key definitions

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- Per Integrated Assessment ISG:
  - **Flood protection:** An incorporated, exterior or temporary structure SSC (e.g., barrier), or an associated procedure that protects safety-related SSCs against the effects of external floods, including flood height and associated effects.
  - **Mitigation:** The capability of the plant to maintain key safety functions in the event that flood protection systems fail (or are otherwise not available).
    - Note: The term “mitigation” in the integrated assessment ISG is not synonymous with the term “mitigating strategies” used in conjunction with FLEX or in the White Paper

# NON-CONCURRENCE 2014-011 RELATED TO “INTEGRATION OF MITIGATING STRATEGIES FOR BEYOND-DESIGN-BASIS EXTERNAL EVENTS AND RE-EVALUATION OF FLOODING

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Submitted by: Glenn Tracy, Gary Holahan,  
and Scott Flanders

# Background

- NTTF recommended “Safety Through Defense-in-Depth”, including:
  - Recommendation 2: enhanced protection from design-basis floods and seismic events, where warranted.
  - Recommendation 4: enhanced mitigation, for both design-basis and beyond design-basis events.
  - Recommendation 8: enhanced severe accident mitigation capability, and
  - Recommendation 9: enhanced emergency preparedness

# Background

- These recommendations constitute a rational set of enhancements, strengthening defense-in-depth, with each recommendation having a specific nexus to the Fukushima Daichi accident.
- The Commission supported these recommendations, in whole or in part, through various mechanisms: Orders, rule-makings, or information demands.

# COMSECY proposal

The fundamental changes being proposed in the COMSECY are:

- 1) to limit staff and industry efforts on flooding to a confirmation that mitigation strategies can cope with the reevaluated flooding hazard; and
- 2) to eliminate (in our view) the systematic re-consideration of any other external flooding protection.

# Consequences

1. The post-Fukushima recommendations would no longer constitute a full set of potential enhancements consistent with the Commission's defense-in-depth safety philosophy;
2. A systematic evaluation of the total plant response to flooding, addressing both protection and mitigation would be curtailed. This would constitute a lost opportunity to identify potential plant vulnerabilities and to implement practical measures to protect key safety-related equipment; and
3. A non-safety-related system or collection of systems, intended for beyond design-basis events would be used to compensate for potential weaknesses in or even non-compliances with flooding design-basis protection requirements.

# NRO Position

- We support the paper's approach on one specific issue; namely, reaffirming the issue of flooding protection for mitigation equipment (i.e. using the 2.1 re-evaluated flooding levels in the 4.2 mitigation strategy).
- We believe it is also necessary to conduct a thorough and systematic re-evaluation of protection of the normal, design-basis safety equipment used for decay heat removal (e.g. the first line of defense including: diesel generators, electrical distribution equipment, motor-driven auxiliary feedwater, service water and other support systems) .

# Summary

- Simply stated, we do not believe that mitigation is an appropriate substitute for protection.
- Both mitigation and protection are essential, but separate, elements of the Commission's defense-in-depth safety philosophy and should be treated as such.

# **UCS Views on the Consolidated Rule and the Staff White Paper**

Edwin Lyman  
Senior Scientist  
Union of Concerned Scientists  
ACRS Fukushima Subcommittee Meeting  
November 21, 2014

# **NRC has a big problem (and so does the American public)**

- It is becoming evident that the reevaluated hazards at many (if not most) U.S. nuclear plants exceed those plants' design bases
- The industry maintains that these are “beyond-design-basis” hazards and should be treated accordingly
- But this is a misuse of the term: the reevaluated hazards are part of the *true* design basis; the original ones were *wrong*

# Rulemaking

- A Mitigation of Beyond-Design-Basis Events rule, if carefully done, could address some of the problems that Near Term Task Force Recommendation 1 sought to rectify (and perhaps should be called Mitigation of Extended Design-Basis Events)
- A key question, as always, will be how to define beyond-(or extended-) design-basis events
  - The cleanest way is to simply upgrade the design basis to incorporate the reevaluated external hazards
  - More severe events would then constitute the extended design basis and would be addressed by mitigating strategies

# Wagging the dog

- The rule should not merely be a codification of the current orders and FLEX guidance (the approach currently being taken by the NRC staff and the industry), or it will enshrine the inconsistencies and half-measures of the current FLEX approach into NRC's regulations
  - Unspecified “beyond-design-basis” external event that does not cause beyond-design-basis damage other than to AC power sources and normal access to ultimate heat sink
  - The stylized scenario in NEI 12-06 falls far short of the conditions at Fukushima (e.g. DC power and electrical distribution systems are available)
  - Confusing concepts (“robust” and “reasonable protection”)
- The industry has already “wagged the dog” once by beginning to spend money on FLEX equipment before the NRC issued the mitigating strategies order and approved guidance; this made it practically difficult for the NRC to later reject FLEX

# Wagging the dog

“Stakeholder input influenced the NRC staff to pursue a more performance-based approach [e.g. FLEX] to improve the safety of operating power reactors than envisioned in NTTF Recommendation 4.2 ...” – boilerplate language in NRC Interim Safety Evaluation Reports

# Typical confusion

- Upstream dam failure at the Columbia Generating Station (from June 10, 2014 meeting summary)
  - “The NRC staff took an action to provide guidance on how Energy Northwest should consider the dam failure analysis results when responding to the Mitigating Strategies Order ... Energy Northwest indicated that some of the strategies for flying equipment into nearby airports from the regional response center could be difficult to perform if the dam failure analysis led to flooding inundation levels that resulted in the nearby airports and roads to the site not being useable.
  - “In response to the above action item, the NRC staff informed Energy Northwest that the response to the Mitigating Strategies Order does not have to consider inundation levels provided in the USACE FHR. The Order requires licensees to develop strategies to address current design/licensing basis external hazards. The NRC staff will evaluate whether to modify the licensing basis flood hazard required to be considered for the Order as part of the broader FHR activities.”

# Consolidation

- It makes sense to consolidate in a single rule the requirements for mitigating strategies (pre- and post-core damage) with the procedures needed to carry them out
- The separate orders for mitigating strategies and reliable hardened vents have led to inconsistent implementation among licensees
  - Why can some Mark I/II BWRs (supposedly) carry out mitigating strategies that require use of wetwell vents without complying with the RHV order while others do not?
- Mitigation of station blackout (due to any cause) should remain a separate sub-requirement
- The entire rule should be implemented as an “adequate protection” requirement
  - Adequate protection = no Fukushimas in the United States

# Validation

- Compliance with performance-based rules must be demonstrated through rigorous performance evaluations
  - Model should be force-on-force security inspections, rather than emergency planning exercises (e.g. every 3 rather than 8 years)
- Validation should be scenario-driven
  - A range of specific external events leading to an ELAP should be considered; all other consequences of the initiating event on the evolution of the accident should be consistently determined
- If FLEX is indeed capable of dealing with anything that comes, then it should be able to pass any specific validation challenge

# White paper and draft rule

- The staff white paper and draft rule appear to invoke FLEX as a panacea for nearly all the difficult issues the NRC faces with regard to the external hazard reevaluations
- This would put too much emphasis on mitigation and not enough on prevention
- As a practical matter, this could cause major delays in resolving situations with unacceptably high risks

# More confusion

- From the preliminary proposed rule (can someone please explain this to me?):

(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 severe natural phenomena that are as severe as the design basis external events in the licensing basis for the facility.

(3) The equipment relied on for the mitigation strategies in paragraph (b)(1) of this section must receive adequate maintenance such that the equipment is capable of fulfilling its intended function following a beyond-design-basis external event.