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Future Plant Designs Subcommittee

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

(ACRS)

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FUTURE PLANT DESIGNS SUBCOMMITTEE

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WEDNESDAY

APRIL 28, 2021

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The Subcommittee met via Videoconference,  
at 2:00 p.m. EDT, Dennis Bley, Chairman, presiding.

COMMITTEE MEMBERS:

DENNIS BLEY, Member

RONALD G. BALLINGER, Member

VICKI BIER, Member

CHARLES H. BROWN, JR. Member

VESNA B. DIMITRIJEVIC, Member

GREG HALNON, Member

WALTER L. KIRCHNER, Member

JOSE MARCH-LEUBA, Member

DAVID A. PETTI, Member

JOY L. REMPE, Vice Chairman

MATTHEW W. SUNSERI, Member

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ACRS CONSULTANT:

MICHAEL CORRADINI

DESIGNATED FEDERAL OFFICIAL:

DEREK WIDMAYER

ALSO PRESENT:

SCOTT MOORE, Executive Director, ACRS

WILLIAM RECKLEY, NRR

NANETTE VALLIERE, NRR

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

2:01 p.m.

CHAIR BLEY: I am going to call this meeting to order. It's a subcommittee to -- future reactor -- Future Plant Design Subcommittee. And this is an internal meeting for the committee to deliberate on the things we've heard about 10 CFR Part 53 and the preliminary draft language. This is in preparation for the possibility of writing a letter on the current status at the May full committee meeting. Members that are in attendance are Ron Ballinger, Charlie Brown, Vesna Dimitrijevic, Greg Halnon, Walt Kirchner, Jose March-Leuba -- Leuba, sorry -- Dave Petti, Joy Rempe, and Matt Sunseri. And I am expecting Vicki Bier, but I don't see her on the list yet.

Now at this point we'll go ahead. I'm going to walk through this agenda that I sent out to the members not long ago. Our goals for today -- my goals for today -- the ones I wrote down -- are to at least come up with a list of issues that we as a committee want to have included in the interim letter. And it would be great if we could also have draft conclusions and recommendations, but we don't need to do that today. We can do that at the committee. And

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1 it would be even better if we had a draft letter -- or  
2 I had a partial draft. But it's just -- too complex,  
3 so we will not write that today.

4           Could you put agenda near the top there,  
5 Derek? Our agenda for today is to develop a detailed  
6 list of issues from our meetings. And we've  
7 circulated that to everyone. And I put together a  
8 simplified list that I just sent out not long ago. I  
9 hope you all got it. It has 22 items that are pretty  
10 much all the things that are in the much longer list  
11 that seemed of potential importance to -- to discuss  
12 today.

13           Content is (Audio interference.) report.  
14 The staff has asked us to focus on the overall  
15 structure they will -- when the two sub-parts that  
16 they've -- we find several times now, sub-parts B and  
17 C. Staff management also indicated to us that they  
18 want to hear about potential problems as early as  
19 possible, so we could go beyond -- if the staff ask.  
20 Our first order of business is to explore the scope of  
21 the letter. And I would propose three items that I  
22 think we should have in the letter, but that's open to  
23 discussion. We want to get through this before we  
24 start looking at specific issues.

25           (Simultaneous speaking.)

1           CHAIR BLEY: Is somebody trying to say  
2 something, or just chatting in the background? The  
3 first is we do want to do as the staff asked and  
4 address the overall structure, subparts B and C, and  
5 have conclusions and recommendations with respect to  
6 them. Second, I propose that we identify particular  
7 open questions where we have a consensus -- where they  
8 should be in the letter. And I don't know that we  
9 need to elevate those to conclusions and  
10 recommendations. This is pretty much a -- a note to  
11 the staff of the things we want to delve into as our  
12 meetings continue through the summer and the fall.

13           And third, if there are any issues beyond  
14 those things we're looking at, particularly today,  
15 that might be major issues in the future, we would  
16 like to get them on the -- on the list so we can alert  
17 the staff that that's something they're going to want  
18 to delve into.

19           So at this point, I want to stick to that  
20 and open the floor to comments from anyone. Is -- is  
21 this kind of structure for the letter reasonable to  
22 you? Or do you think there are other things we ought  
23 to be trying to address? Just open your mics and talk  
24 if you have something to say on this.

25           (Simultaneous speaking.)

1 MEMBER SUNSERI: Dennis, this is Matt. I  
2 thought it was --

3 (Simultaneous speaking.)

4 MEMBER SUNSERI: I commend you for the  
5 preparation for this meeting. I think the outline you  
6 put together is excellent, and I support the  
7 recommendations that you just provided.

8 MEMBER PETTI: I agree.

9 MEMBER DIMITRIJEVIC: Me too. We support  
10 your structure that is -- but I have some sound  
11 problem. You come in and out when I listen, I don't  
12 know -- do others have the same problem?

13 MEMBER HALNON: My sound is good, Vesna.  
14 I'm not sure -- if you have an issue there, but mine  
15 is good.

16 MEMBER DIMITRIJEVIC: Okay, I may sign out  
17 and sign back in. Let's see.

18 MEMBER REMPE: I don't have the in and out  
19 thing, Dennis, but your sound is much softer than  
20 other members. If you could turn up your volume, it  
21 would be great.

22 MEMBER SUNSERI: I have a feeling we lost  
23 him. This is Matt.

24 MEMBER REMPE: Do I need to tell him that  
25 again?

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1 MEMBER PETTI: No, he still shows checked  
2 in.

3 (Simultaneous speaking.)

4 MEMBER SUNSERI: But he has this problem  
5 where his -- his audio goes out on him occasionally.  
6 I'll text him.

7 MEMBER MARCH LEUBA: Yes, Dennis, you're  
8 still muted. You came in for a second, but then you  
9 muted yourself.

10 CHAIR BLEY: All right?

11 MEMBER MARCH-LEUBA: -- all right. I  
12 didn't mute myself, so I don't know what happened, but  
13 every once in a while that seems to happen. You can  
14 hear me now, I hope?

15 MEMBER KIRCHNER: Dennis, Joy suggested --  
16 maybe if you could increase your volume into your  
17 microphone?

18 CHAIR BLEY: I cannot increase my volume.  
19 I can talk more directly to the microphone.

20 MEMBER KIRCHNER: Okay.

21 CHAIR BLEY: I can get my telephone if you  
22 can't hear me.

23 MEMBER REMPE: Well talking more directly  
24 would be helpful.

25 MEMBER KIRCHNER: Going back to scope, I

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1 concur. I think it's a reasonable proposal.

2 CHAIR BLEY: Okay, we -- I'm passing that  
3 item on and we're now on our second order of business,  
4 which is the main thing we're trying to do today --  
5 and that's to discuss the issues. I took all of the  
6 issues in that long document I sent you late last  
7 night from the -- I hope you all got it. And I  
8 summarized them into -- I think its 22 issues in  
9 brief. And we don't need to have all the details  
10 here. What we really want to do is find which ones we  
11 want to include. Our process for doing this is going  
12 to be -- Derek will put up that other chart I sent and  
13 we will -- will not have the list of issues. Is there  
14 any member -- or consultant -- who does not have the  
15 list of 22 summary issues?

16 (No audible response.)

17 CHAIR BLEY: Okay, so I will assume you  
18 have that in front of you. I'm going to begin with  
19 mentioning that the conclusions and recommendations  
20 from the letter we wrote back in October after our  
21 first meeting on Part 53 -- those recommendations and  
22 inclusions still apply. And I have them listed in the  
23 -- the long set of items. You also should have the  
24 letter.

25 I don't know that we need to discuss them.

1 I think that, in the letter, we can just mention that  
2 they are still open items. If there's any objection  
3 to that, say so now before we get into the new issues.

4 (No audible response.)

5 CHAIR BLEY: Because -- reading through  
6 all the issues, we have lots of different opinions.  
7 And reading through the transcripts, even more. And  
8 some of us internally ourselves have more than one  
9 position on some of these issues. What I am going to  
10 do is go around the table and ask each -- each person  
11 to pick at that point their highest priority that they  
12 want to make sure we walk about and try to have put on  
13 the list for the letter. And we'll just keep doing  
14 that. I hope we can get through all 22 of these. And  
15 you may have more that I didn't get on the list -- or  
16 didn't find as I went through the transcripts.

17 We're having a working session, and that  
18 table will be the primary summary of what we do. And  
19 I am going to use that for putting together a draft  
20 letter. I want to say, again -- I said this at -- the  
21 last time we talked about it -- it might be very  
22 reasonable for us to have added comments for the  
23 letters we do on Part 53. It seems to me -- and this  
24 is worth discussing before we hit the detailed issues  
25 -- that it would be better where we have consensus

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1 positions, to have those in a strong way in the  
2 letter, rather than having some of the waffling words  
3 we've had before to say, now one or maybe two members  
4 don't agree with us -- and let those come out in added  
5 comments.

6 But if anybody want to say anything about  
7 that approach, this is a good time.

8 MEMBER HALNON: Dennis, this is Greg.  
9 Sorry to pull you back. The 22-issue list, is that  
10 the one that is 1 through 26 on the back side of this  
11 agenda that we're talking through?

12 CHAIR BLEY: The 26 issues that we have on  
13 our list -- yes, you're right.

14 MEMBER HALNON: Okay, all right. I just  
15 wanted to make sure. I didn't want to say I didn't  
16 have it, but I had a couple extras. I wanted to make  
17 sure.

18 CHAIR BLEY: I was working from flawed  
19 memory on how many are there.

20 MEMBER HALNON: That's all right. We've  
21 got it, thank you.

22 CHAIR BLEY: Okay. At this point I am  
23 going to ask Derek to put up the summary table of the  
24 issues we want to add. It has a -- we like this and  
25 we don't like this, we want to change this -- set of

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1 columns. They don't apply to everything. And if  
2 that's not helpful, we can abandon it. It was just a  
3 way to try to see how -- how we were leaning out as  
4 far as what we were -- seeing positive or negative.  
5 So Derek, if you can put up the -- the other table  
6 instead of this file, it would be nice.

7 I got rid of the examples that I had in  
8 here. They will come up as issues by someone. Except  
9 for the first one, and the first one I had under, we  
10 like enough to include in the letter, was overall  
11 structure -- the subpart arrangement, A through I.  
12 Now, if you've ever tried to rummage through all of  
13 NRC's regulations and find the order, I think you'll  
14 find that this -- this is a -- it's really nice to  
15 have a layout that -- that makes this. Most of us in  
16 meetings or in notes have said they like that general  
17 structure. So I left that one on the list and as soon  
18 as Derek gets it up we'll talk about it. And that  
19 will be my citing. And then I'll start going around  
20 the table. When it comes --

21 (Simultaneous speaking.)

22 MEMBER REMPE: Dennis, while we're waiting  
23 for Derek's screen to come up, I had a question on  
24 your list of 26 items -- and I'm asking it not to pick  
25 on one item, but if the staff has already put

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1 something in the latest version of parts B and C, are  
2 we supposed to have that in this list of 26 items?  
3 Because -- I guess I'm a little puzzled on how that 26  
4 list fits into this table that's going to come up  
5 here.

6 CHAIR BLEY: The 26 list is just potential  
7 things for us to talk about. Although the staff has  
8 addressed quite a few of them, some people feel they  
9 haven't addressed them well enough.

10 MEMBER REMPE: Okay.

11 CHAIR BLEY: We'll talk about that. And  
12 if they have and we like it, we may want to put it in  
13 the table as something we like -- I mean, put it in  
14 the letter as something we support. And if we don't,  
15 we'll go the other way. What I was about to say is  
16 when I go around the table, feel free to either pick  
17 an item and tell us the number off of this list of 26,  
18 or pick anything you want that's not on here and talk  
19 about it. It should be -- to make us more efficient,  
20 it should be the -- the thing you would most like to  
21 see show up on here.

22 So the thing I would most like to see --  
23 I'm going first -- is we like the overall structure,  
24 subparts -- laying it out in subparts A to I and that  
25 there's a -- a logical organizations and that those

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1 cover all things that should be in the list. That's  
2 open for discussion at this point. It's issue 1 on  
3 the table of 26. I have an extra piece in there that  
4 --

5 (Simultaneous speaking.)

6 MEMBER BROWN: Okay -- well, they were  
7 supposed to say it was an --

8 CHAIR BLEY: I'm sorry, Charlie? Okay.  
9 I think most members have agreed with this, but if --  
10 if you don't --

11 (Simultaneous speaking.)

12 CHAIR BLEY: -- let's hear and talk about  
13 it.

14 CHAIR BLEY: Any comments? The second  
15 sub-bullets --

16 (Simultaneous speaking.)

17 MEMBER BROWN: Dennis? Dennis? It's  
18 Charlie this time. Can I -- I got lost taking care of  
19 my air-conditioning here for a second. The list of 26  
20 -- I don't have a list of 26.

21 CHAIR BLEY: Did you get an email from me  
22 about an hour ago?

23 MEMBER BROWN: I haven't looked that far  
24 yet. I was reviewing all the other stuff. I'll go  
25 look. And this list you got right here, is that a --

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1 I saw -- the way I've got printed out, it's issues for  
2 discussion. But now this looks like for inclusion.  
3 Is that attached also?

4 CHAIR BLEY: No, that came out a week or  
5 two ago. And it's empty. We're going to fill that  
6 out today. Don't worry about having a copy.

7 MEMBER BROWN: Okay, I'll go get your  
8 email. I'll sign off, thank you.

9 CHAIR BLEY: Okay. Item -- another item  
10 that came up by two different people. And the way it  
11 is in number one over there is, we usually do not see  
12 justification and explanatory language in NRC  
13 regulations. They show up in the statements of  
14 consideration, or in NUREGs or some other documents.  
15 A couple people wondered if maybe this is a time that  
16 maybe they can depart from that. I don't know if we  
17 have any lawyers with us from the staff, but a couple  
18 people said, you know, it would be really nice to have  
19 some of the clarifications that we've talked about and  
20 hopefully show up in -- what we were thinking would be  
21 statements of consideration, if there was a way to  
22 weave that in to maybe subpart A to provide the  
23 background that's usually not in regs. They're  
24 usually do this, do this. But having that -- that  
25 approach. And I don't know if there's a legal reason

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1 the staff can't do it, but it's something we might  
2 suggest that they'd want to do.

3 And now I'd like to hear from any members  
4 on that. And when the members are done, I would ask  
5 -- I think I saw Bill on here. I'd ask Bill if that's  
6 something the lawyers won't let you do, or is it  
7 something that could be considered? But first members  
8 and consultants.

9 (Simultaneous speaking.)

10 MEMBER BROWN: Who do you want to go  
11 first?

12 CHAIR BLEY: Charlie, go ahead. I see  
13 you.

14 MEMBER BROWN: One of my comments in one  
15 of the earlier meetings was I thought we shouldn't  
16 have this big, long, 9-page statements of  
17 consideration that have all this stuff in it. I -- I  
18 agree with your thought that the critical stuff about  
19 why things the way they are would be better as a  
20 preamble to the rule in Part A, then having separate  
21 statements of consideration. That -- that -- that was  
22 just my -- I just wanted to throw that -- my agreement  
23 with you in on that.

24 MEMBER BLEY: Okay, they're one of the  
25 people from which this came.

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1 MEMBER BROWN: Thank you.

2 (Laughter.)

3 MEMBER HALNON: Dennis, this is Greg. I  
4 -- my opinion here is that you're right. The  
5 statements of consideration tend to get buried over  
6 time, and -- and then some astute licensing engineer  
7 picks it out of the -- nowhere, and says, this is what  
8 it meant back in -- you know, ten years ago when it  
9 was written. So somehow -- I'm not sure if it's  
10 expand the rule, or if there's some other mechanism to  
11 not bury these clarifications into the statements of  
12 consideration. I think these statements of  
13 consideration still need to be written as they have  
14 been, but somehow we need to carry some of the more  
15 pertinent things forward. And I go back to my  
16 experience on the fatigue rule back in -- in the  
17 early, you know, 2008-2009 time frame when we spent  
18 probably most of our time talking about statements of  
19 considerations rather than rule language itself  
20 because of the ambiguous and some of the times unclear  
21 language used in the tables. So somehow we have to  
22 capture it. I'm not sure if it's in the rule itself.  
23 It might make the verbiage in the actual 10 CFR a  
24 little bit too -- too much, but maybe there's another  
25 way we can get the staff to suggest if there is some

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1 other way so that we don't have to go back through  
2 sometimes thousands of pages of statements and  
3 considerations.

4 CHAIRMAN BLEY: Well, and it's even worse  
5 in some cases. We've had cases where -- in some of  
6 the older rules, nobody could even -- nobody could  
7 find the statements of consideration that applied.

8 (Simultaneous speaking.)

9 CHAIRMAN BLEY: That doesn't happen  
10 anymore. I think they have a more systematic way to  
11 keep track of them, but -- that's a -- somebody was  
12 trying to talk? Go ahead.

13 MEMBER HALNON: I think I was talking over  
14 you. I apologize.

15 CHAIRMAN BLEY: Okay. Bill Reckley, are  
16 you on the phone? Is there a reason why that's an  
17 impossible item?

18 MR. RECKLEY: I am going to defer to Nan  
19 on that.

20 MS. VALLIERE: Hello Dennis, this is Nan.  
21 Bill is likely referring to me because -- deferring to  
22 me because I spent many years as a rule maker in new  
23 reactors. So you will -- you will see in many parts,  
24 you know, sometimes a brief section that is either  
25 labeled purpose or scope of the subpart. Those parts

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1 are typically fairly brief and not really -- don't  
2 really provide the basis for the particular  
3 requirements or regulations. They might -- you know,  
4 they might do something like provide a bit of  
5 information about layout of the -- of the particular  
6 parts. So if that's what you're referring to,  
7 something to that effect might be possible. But it is  
8 -- I am not familiar with many parts that would really  
9 go in depth in explanation in the rule text themselves  
10 as to, you know, what's -- how -- what's the layout,  
11 what's the structure, what's the purpose of our  
12 underlying basis for the requirement? I won't go so  
13 far as to say, you know, that it can't be done because  
14 I don't know that it can't be done. But I am not  
15 aware of it having been done in the past. And as --  
16 as -- as you noted -- you all noted in your earlier  
17 conversation, it would certainly be something we'd  
18 have to talk to OGC about.

19 CHAIR BLEY: Okay, thank you. And -- Nan,  
20 we appreciate that. And I -- I am thinking that  
21 something like this is liable to end up in here. And  
22 we hear back from OGC saying, no, you can't do that.  
23 But given the brevity you're searching for in the  
24 sparse nature of the rule, this feels like something  
25 that's encoded with the rule would be really helpful.

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1 We'll figure out how to say it, and then we --the OGC  
2 can get back to us and tell us why we can or can't do  
3 it. Okay.

4 MEMBER KIRCHNER: Dennis? This is Walt.  
5 I think there's a corollary to this discussion and  
6 that is you -- consistently through our interactions  
7 with the staff and Bill have pointed out the need for  
8 guidance, and you know, when will guidance be  
9 forthcoming? And so on. And what you just said  
10 struck me, is that as they -- as they seek brevity in  
11 the rule, there's a downside risk that I see that when  
12 you're not explicit as you might be, you open the door  
13 to not only lead to review become very customized --  
14 and of course that by necessity may happen as the  
15 technologies vary. But I worry that it increases  
16 regulatory uncertainty and -- and -- and in -- as a --  
17 kind of a byproduct of being so brief. And guidance  
18 is guidance. So my sense here is that -- that's why  
19 I said it's something of a corollary to the  
20 explanatory language in the statements of  
21 consideration. Better -- as Greg was saying, better  
22 to have it in the rule and not buried somewhere else.  
23 Better to be explicit when you can be so that the rule  
24 stands by itself and one doesn't have to go searching  
25 for guidance or -- or justification -- statements of

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1 consideration. Just one member's opinion.

2 MEMBER SUNSERI: This is Matt. I second  
3 that. I think -- think it's very accurately stated,  
4 Walt.

5 MEMBER BALLINGER: This is -- this is Ron.  
6 I'm wondering when to -- when to chime in. I have  
7 been on another issue trying to see how Part 53 as  
8 written would apply to fission batteries. And so I've  
9 been going through this in quite a bit of detail, as  
10 a matter of fact. And I've concluded -- and -- at  
11 some point that -- in looking at the NEI responses and  
12 inputs and things like that -- that one of the key  
13 pieces that we should make a comment on is the  
14 division between the rule and guidance. There's a lot  
15 of discussion that goes back and forth, you know, in  
16 -- in the minutes and things like that, related to  
17 that. But I suspect that given the -- the sort of  
18 differences between all the various technologies and  
19 things like that that this might apply to, that having  
20 guidance is very -- is going to be very, very  
21 important. And the division between what's in  
22 guidance and what's in the rule has got to be, I  
23 think, very carefully -- c you carefully considered.

24 CHAIR BLEY: Thank you, Ronnie. Derek,  
25 would you put a sub-bullet right where you are?

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1 (Pause.)

2 CHAIR BLEY: And shift it to the -- yes,  
3 there you go. The arrow up above -- no, no, no.  
4 They're all in here. Go two places to the right and  
5 -- see the little arrow to the right? One more.  
6 There, click on that. Okay. Division -- write these  
7 words -- division between rule and guidance. And then  
8 delete the -- make that not bold. And then up above,  
9 right where it says include some key explanations,  
10 make include some key explanations bold. Then do me  
11 a favor because I screwed you up -- highlight --  
12 highlight that row, left to right, and then go up to  
13 table, insert rows -- and put some rows in here.

14 (Pause.)

15 CHAIR BLEY: Put a bunch of them in for  
16 yourself. There you go. Okay. So before we leave  
17 this one my intention was to say we have consensus to  
18 talk about overall structure, and to say something  
19 about including some explanation in the rule. If  
20 that's okay, we'll go to the next one. I'm going  
21 around in alphabetical order. Go to Ron Ballinger.  
22 What's your favorite issue? Put it up for discussion.

23 MEMBER BALLINGER: I just -- I just did  
24 it.

25 (Laughter.)

1 MEMBER BALLINGER: I just did it.

2 CHAIR BLEY: That was -- Ron, that was  
3 part of the one we just did. It's up there.

4 MEMBER BALLINGER: Yes -- no, it's fine.

5 CHAIR BLEY: Do you have another issue you  
6 want to get --

7 MEMBER BALLINGER: I -- one of the  
8 comments I made in one of the previous discussions  
9 was, given the difference in technologies and things  
10 like that, there ought to be some -- some -- something  
11 in there that talks about identifying uncertainties.  
12 Or unknowns -- excuse me, I used the word unknown.

13 CHAIR BLEY: So Derek, up where it says on  
14 the right side item 1, highlight item 1 and, Ron, type  
15 in what the issue is. This isn't one, I don't think,  
16 that was on our list.

17 MEMBER BALLINGER: Let's see here. Gosh,  
18 let me see. I've got -- I've got multiple files open  
19 that I can't -- ones -- some I control and some I  
20 can't control. It's -- we should have an inclusion of  
21 a requirement to identify unknowns. I'm looking at  
22 comments I made -- let's see, what -- on one meeting,  
23 I forget.

24 CHAIR BLEY: We're talking today.

25 MEMBER BALLINGER: Yes, yes. Well I -- I

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1 -- my comment stands. We need to have a consideration  
2 of including requirements that address unknowns in the  
3 design.

4 MEMBER PETTI: Okay Ron, you confused me.  
5 If they're unknown, how do you make them known?

6 MEMBER BALLINGER: Yes, that's a -- that's  
7 a good --

8 (Laughter.)

9 MEMBER BALLINGER: That's -- that's -- I  
10 would have liked to have said unknown unknowns.

11 MEMBER PETTI: Right, yes.

12 MEMBER BALLINGER: So I'm not using -- I'm  
13 not using the best terminology, but I think you get my  
14 point. There will be a lot of -- of -- of areas where  
15 we just don't know things. And -- but we should know  
16 them, and we ought to -- I try to -- the applicant  
17 ought to try to identify those because that also goes  
18 to the point of whether or not you need a prototype,  
19 right?

20 MEMBER PETTI: Right.

21 CHAIR BLEY: Let me -- let me -- let me  
22 point the members on the long list to page 4. And let  
23 me read one of the conclusions and recommendations  
24 from our first letter. I think we already have this  
25 and can refer to it there, Ron.

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1 MEMBER BALLINGER: Yes, yes, I think so --  
2 I think so.

3 CHAIR BLEY: The second recommendation was  
4 that Staff should ensure that applicants compensate  
5 for novel designs with uncertainties due to  
6 incompleteness and the knowledge-based type recurring  
7 systematic searches for hazards, initiating events,  
8 accident scenarios with no preconceptions that could  
9 limit their creative process.

10 The third one is, the rules should provide  
11 a pathway for licensing prototype facilities and  
12 uncertainties in the knowledge-base. And lack of  
13 operating experience suggest that additional testing  
14 and monitoring are needed.

15 So I'd like to delete this one and say  
16 we've already done that. We have a fair amount of  
17 text in that letter about that issue.

18 MEMBER BALLINGER: Right. But that pretty  
19 much was focusing on initiating events, right?

20 CHAIR BLEY: No. It was focused on --

21 MEMBER BALLINGER: No, okay. All right,  
22 I'm just --

23 (Simultaneously speaking.)

24 MEMBER BALLINGER: All right, that's fine.  
25 I think it's covered then.

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1 CHAIR BLEY: So, thank you, Derek. Next  
2 is Charlie Brown. And Charlie said he would be  
3 disappearing, I think, so Vesna.

4 MEMBER BROWN: I'm here, but I just go  
5 back.

6 CHAIR BLEY: Oh, there's Charlie.

7 MEMBER BROWN: I'm sorry about that.

8 CHAIR BLEY: Go ahead. And you take your  
9 top issue out of the rest. Or something else you want  
10 to put on the list?

11 MEMBER BROWN: Can you come back to me so  
12 I can sign off on my technician leaving?

13 CHAIR BLEY: Of course.

14 MEMBER BROWN: Okay, thank you.

15 CHAIR BLEY: Vesna.

16 MEMBER DIMITRIJEVIC: Yes. Okay, so I  
17 have a, I did a selection from all of my notes and I  
18 concentrate on three issues from my point of the view.

19 However, when I sent them to you in the  
20 table I didn't really notice that the last was the  
21 things we liked, I thought that was a subject we  
22 discussed. So basically I didn't identify things I  
23 liked.

24 That if I think switch, I think should be  
25 considered for change. So my three subjects is the

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1 following.

2 The first --

3 (Simultaneously speaking.)

4 CHAIR BLEY: Just do then one at a time  
5 for people.

6 MEMBER DIMITRIJEVIC: Okay. So number one  
7 would be the use of the QHOs.

8 CHAIR BLEY: Okay, that's number four on  
9 the list --

10 MEMBER DIMITRIJEVIC: Right.

11 CHAIR BLEY: -- that includes some of the  
12 text you sent me but not all of it. Just a summary of  
13 it.

14 MEMBER DIMITRIJEVIC: Okay. So I will  
15 start with, that they shouldn't be used because of the  
16 huge uncertainties associated with them because you  
17 need the location to, even to use them in any method.

18 So basically, the uncertainties associated  
19 with those numbers. So I think they should just be  
20 eliminated.

21 So, my other comment was associated with  
22 the use of the PRA. We --

23 CHAIR BLEY: Vesna?

24 MEMBER DIMITRIJEVIC: Yes? I saw that you  
25 also have that in --

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1 CHAIR BLEY: Oh yes, you saw it? Okay, go  
2 ahead.

3 MEMBER DIMITRIJEVIC: All right. And  
4 point was that that would support rated PRA use  
5 depending on the team risk associated with facility.

6 And also, only the cases that they're  
7 planning to have a risk informed application that we  
8 may need the full blown PRA. And the PRA can be used  
9 in many other forms and provide the logical structure  
10 for other licensing. And also, provide the base for  
11 the, a lot of valuable inputs without being full blown  
12 level 3 PRA.

13 So I think whatever they identify is the  
14 use of the PRA can stay there it's just, this could be  
15 limited quantitative qualitative views of the PRA.

16 And my third issue was the safety  
17 specification of the system components. And my point  
18 there was that they say that the, in this 53.46 that  
19 they should be, the SSCs and human action should be  
20 classified according to the safety significance.

21 And then they say that the category would  
22 be that non-safety related, safety significance. Is  
23 that classified based on that safety significance, how  
24 can you have category non-safety related, but safety  
25 significant?

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1           But my point is that those four categories  
2           which exist today, are a result of the risk insights  
3           were added, were add-ons after all of the principle  
4           safety, the deterministic principles have been fully  
5           developed and used.

6           I don't think that's needed now. The PRA  
7           insights should be added to existing the deterministic  
8           principles. Then there would not be need to have non-  
9           safety related but safety significant.

10          However, I mean, I recognize that you may  
11          have a PRA quality limited, quantitative insights into  
12          the safety significance. And in some cases you may  
13          not, you may verified something to say safety  
14          significant later, in the process when the plant is  
15          already built.

16          And then there should be some approach  
17          that changing safety specification or adding some  
18          special treatment. But I think that this, these four  
19          categories are sort of analogous of how this process  
20          was developed. There is no need to have them in the  
21          new regulation.

22          So these are my three important issues  
23          that quantitative measures that PRA, you're not  
24          defining need for the PRA and the safety  
25          categorization. And I notice you have two of them.

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1 I did notice this safety categorization in  
2 those 26. But I didn't read them carefully, didn't  
3 have the time. So I'm not sure if they're there.  
4 Hello? Am I connected?

5 MEMBER BIER: Yes.

6 MEMBER BROWN: Yes. We had a --

7 (Simultaneously speaking.)

8 MEMBER REMPE: Dennis needs to unmute or  
9 something.

10 CHAIR BLEY: I need to unmute because my,  
11 okay. What's all that stuff at the bottom? Oh,  
12 that's yours, Derek. Okay.

13 Derek?

14 (Off record comments.)

15 CHAIR BLEY: Derek, whenever you're ready  
16 say something.

17 MEMBER BROWN: Vicki is not muted, Dennis.

18 CHAIR BLEY: And, Vicki, welcome. And  
19 you're not muted.

20 MEMBER BIER: Okay. Should I go ahead and  
21 give my point or --

22 CHAIR BLEY: No, you should not.

23 MEMBER BIER: Okay.

24 CHAIR BLEY: Please --

25 MEMBER BIER: I will mute then and wait.

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1 MR. WIDMAYER: I am ready, Dennis.

2 CHAIR BLEY: Oh, you're back? Okay.

3 MR. WIDMAYER: I wasn't gone.

4 CHAIR BLEY: Things we don't like in  
5 parentheses put IV and say, QHOs should not be used.  
6 Over on the other column, things we like, put 12 in  
7 parentheses, PRA is requirement is good but a graded  
8 PRA must be defined.

9 Then the next one down. This is really a  
10 question not a good or bad. In parentheses 17. And  
11 what I had is a little different than the way Vesna  
12 said it though but I think basically it's the same  
13 thing. How will forms of license be included and what  
14 will be the phase-by-phase requirements.

15 And there we're talking about  
16 construction, you don't need to write this, Derek,  
17 construction permits, COLs, CSTs. All of those kinds  
18 of license forms. I think that was one of yours,  
19 right, Vesna? Can you answer?

20 MEMBER DIMITRIJEVIC: That was one of mine  
21 in the earlier discussions of the meetings.

22 CHAIR BLEY: Yes. And you brought it up  
23 just recently.

24 MEMBER DIMITRIJEVIC: Right. Right.  
25 That's true. It was always one of my concerns.

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1                   And now that, that one which I just  
2 brought in discussion is that safety specification.

3                   CHAIR BLEY: Yes.

4                   MEMBER DIMITRIJEVIC:           And that  
5 insignificant things should be classified as a safety,  
6 and we shouldn't have four categories anymore.

7                   CHAIR BLEY: Go one down, Derek.

8                   MR. WIDMAYER: Dennis, what was the word  
9 you wanted after phase-by-phase?

10                  CHAIR BLEY: No, I want it in the next  
11 row. Where there is a bullet.

12                  MR. WIDMAYER: Yes, you had a word after  
13 phase-by-phase that I left out.

14                  CHAIR BLEY: Oh. Requirements. Now on  
15 the next one, put 27 in parenthesis. Safety  
16 significance categorization.

17                  And if I remember, the text you sent, and  
18 what you said, that we should just have safety  
19 significant and not safety significant, and nothing  
20 about safety grade and not safety grade?

21                  MEMBER DIMITRIJEVIC: No. What I wanted  
22 to say, safety grade should include safety  
23 significant. So it should be safety grade, not safety  
24 grade, but safety significant components should be  
25 included in safety grade.

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1 CHAIR BLEY: So it would be identical,  
2 those two lists?

3 MEMBER DIMITRIJEVIC: No. I just to say  
4 safety grade and not safety grade, but determinist  
5 failure should be enhanced with the risk informed.  
6 Safety significant.

7 CHAIR BLEY: That kind of says they should  
8 be one in the same category.

9 MEMBER DIMITRIJEVIC: Yes.

10 CHAIR BLEY: That they're not --

11 MEMBER DIMITRIJEVIC: Yes.

12 CHAIR BLEY: -- risk --

13 MEMBER DIMITRIJEVIC: Yes.

14 (Simultaneously speaking.)

15 MEMBER DIMITRIJEVIC: They should be, yes,  
16 safety significant components should be rated for a  
17 safety grade. I don't see why we would still have  
18 four criteria, but now we're enhancing the  
19 deterministic with risk informed.

20 CHAIR BLEY: So, Derek, right there after  
21 characterization, in parentheses put, no longer have  
22 safety significant, not safety significant.

23 MEMBER DIMITRIJEVIC: No longer have --

24 CHAIR BLEY: I'm --

25 MEMBER DIMITRIJEVIC: -- not safety grade,

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1 safety significant. That's the category I want there.

2 CHAIR BLEY: No longer, you're right, not  
3 safety grade, on both those.

4 MR. CORRADINI: So, Dennis, this is  
5 Corradini. I'm a bit confused as to what Vesna is  
6 requesting. Or recommending.

7 CHAIR BLEY: Before you close the  
8 parenthesis another comma, risk significant, not risk  
9 significant.

10 Now, I was going to go to Vicki but go  
11 ahead, Mike.

12 MR. CORRADINI: I just want to be sure, so  
13 Vesna, I just want to ask Vesna again, so I'm clear.  
14 She wants to say that anything that is risk  
15 significant should be a safety grade component?

16 MEMBER DIMITRIJEVIC: Yes. That risk  
17 informed information should be included in the safety  
18 classification. That's what I'm saying.

19 So basically, I don't think you should  
20 have a risk significant component which is not safety  
21 grade. That's what I'm saying.

22 Well, I don't really know why my  
23 communication skills are not working here. Originally  
24 we had the safety classification, safety grade, non-  
25 safety grade totally based on deterministic principle.

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1 Then it comes clearer and identifies safety  
2 significant, non-safety significant.

3 In order to merge these two these four,  
4 the two-by-two table was constructed. Which is in  
5 50.69 and things like, other things.

6 So, I'm saying we are doing regulation for  
7 the new generation. Why should we have a risk  
8 informed and deterministic principle separated and  
9 have these two-by-two, let's merge them.

10 Because if we identify, something is risk  
11 significant it should be safety grade. This is, in my  
12 opinion, this is a result of this, you know, it's sort  
13 of like the other reason, these four categories.

14 They become of the way, how the things  
15 were better off, but now we can better up the new  
16 principle because we know that both the deterministic  
17 and risk insight should be considered.

18 So I don't think that category called non-  
19 safety grade risk significant should exist. Because  
20 it risk significant should be safety grade.

21 CHAIR BLEY: So, Mike?

22 MR. CORRADINI: Yes.

23 CHAIR BLEY: If we keep the one --

24 MR. CORRADINI: Dennis.

25 CHAIR BLEY: -- I will fair out some

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1 language that deals with this. You know, the original  
2 safety grade, if we go back 50 years or more, have  
3 nothing to do with deterministic or anything else, it  
4 was what a bunch of guys thought was probably worth  
5 saying is important.

6 What Vesna refers to is the four elements  
7 as something we see in, what is it, 50.59, I forget  
8 the numbers on some of those. In any case, those four  
9 items.

10 So, were she is kind of where the LMP is  
11 which saying something comes out risk significant in  
12 your analysis that should have special treatment --

13 (Off record comments.)

14 CHAIR BLEY: I'm sorry. Should have  
15 special treatment that's appropriate to its level of  
16 risk. And whether we call that safety grade.

17 MEMBER MARCH-LEUBA: Excuse me, point of  
18 order. Can I ask a question about process?

19 CHAIR BLEY: Yes.

20 MEMBER MARCH-LEUBA: What are we doing  
21 now? I thought we were listing the items we wanted to  
22 discuss later.

23 Are we giving you ideas for you later or  
24 are we trying to reach a consensus?

25 Should I chime in on this item because I

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1 agree with Vesna, but I, okay, point of order, what  
2 are we doing now?

3 CHAIR BLEY: We are putting together a  
4 list of items that could go in the letter.

5 MEMBER MARCH-LEUBA: But are we going, are  
6 we trying to reach a consensus of the members?

7 Am I supposed to chime in and discuss this  
8 particular item?

9 CHAIR BLEY: If you let me --

10 MEMBER MARCH-LEUBA: Or are we going to do  
11 that later?

12 CHAIR BLEY: Jose, will you let me finish?

13 MEMBER MARCH-LEUBA: Yes, please.

14 CHAIR BLEY: What we are doing is coming  
15 up with a list. The things that are bolded are things  
16 we agree will be in the letter. The things that are  
17 not bolded are things that might be in the letter.  
18 And if anything gets underlined, something that seems  
19 important but we don't have a consensus and somebody  
20 might want to write their own added comments.

21 And, yes, you should, at this point, say  
22 what you want to say about, let's stay with the safety  
23 significant issue and then we'll go to the other ones.

24 MEMBER MARCH-LEUBA: Yes, my point is, if  
25 we're going this route we're going to close then at

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1 10:00 p.m. and continue tomorrow.

2 But bending some of the rules, I  
3 completely agree with Vesna. If something is safety  
4 significant it should be safety grade.

5 CHAIR BLEY: Thank you.

6 MEMBER MARCH-LEUBA: I don't see how it  
7 cannot be.

8 CHAIR BLEY: Vicki was trying to say  
9 something.

10 MEMBER BIER: Okay, now I'm unmuted. In  
11 a way this is kind of related to the comment that I  
12 guess Jose just made about, are we trying to agree on  
13 things or just raise a point.

14 Because my point kind of comes back to  
15 Item 12, about PRA. And I'm a little bit behind the  
16 times because it's been so many years since I have  
17 really looked into PRA for passively safe reactors.

18 And of course, you guys may have already  
19 discussed it before, but I am kind of curious, like,  
20 to what extent does the current status of PRA for  
21 advance reactor designs justify making it a  
22 requirement or is it going to be kind of a check the  
23 box requirement where they use something pro forma  
24 that we end up then being dissatisfied that it's not  
25 really stronger, insightful or whatever.

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1           So, I don't know that I would put Number  
2           12 on the left side yet, but you guys may have already  
3           had enough discussion to finalize that issue.

4           CHAIR BLEY:    We, in our past design  
5           certifications that we wrote letters on, in all the  
6           PRAs we pointed out that they needed, before they get  
7           to the startup point, they need to have included some  
8           modeling of the likelihood of, especially for  
9           passively safety features that depend on kind of  
10          delicate thermal hydraulic balances, they need to have  
11          looked for things that could upset that and cause a  
12          problem.

13          One of the PRAs actually had done some of  
14          that. The others, they still need to do it. But yes,  
15          it's on the list of things, but it's neither to state  
16          now, or you say you're completely comfortable with it,  
17          but it's been tied to something they really have to  
18          address. And some have.

19          MEMBER DIMITRIJEVIC:  But there is, from  
20          the point of the left to right side, I agree with  
21          Vicki. My point in the PRA was, the requiring PRA  
22          shouldn't be. It's not something we like.

23          However, if requiring PRA inputs to the  
24          selection of the design basis events to the safety  
25          specification, to the exclusion zones, to the wrap,

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1 that's good. They identified what the PRA can be used  
2 for. That list is good.

3 However, what, you are requiring full  
4 scope PRA for that is not good in my opinion. That's  
5 what, how I was defining the requirement. Not  
6 requiring full scope PRA but requiring PRA inputs to  
7 those different categories.

8 CHAIR BLEY: Okay, thank you. Let's stay  
9 with that one that's labeled 27. Two people have  
10 talked about it, I said I will kind of massage it and  
11 will keep it.

12 I propose making it bold, but if anybody  
13 has things they want to say about it, maybe why we  
14 don't want to talk about it, bring it up now. So,  
15 Derek, highlight 27 in bold.

16 MEMBER HALNON: So, this is Greg. Before  
17 I would say that is appropriate, 50.69 was put out  
18 specifically to try to parch this out. And there is  
19 a lot of tentacles when you call something safety  
20 grade under the procurement quality, other items,  
21 surveillance testing, all this stuff.

22 And I'd just like to understand the deltas  
23 between changing it from risk significant to safety  
24 grade?

25 I'm not saying I disagree with it, but I

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1 would like to understand the total impact to it.

2 MEMBER PETTI: I agree with you, Greg.  
3 This is Dave.

4 I don't know what the change in the words  
5 mean as you flow stuff down, right? Is the QA input  
6 going to increase?

7 Because, what is risk significant? What's  
8 the metric, what's the acceptance criteria when  
9 something is or isn't?

10 If it changes the risk by one percent. As  
11 you know, I just don't know where that's going.

12 MEMBER DIMITRIJEVIC: I can explain that  
13 because I am familiar with this special treatment in  
14 50.69. The non-safety grade, safety significant is  
15 supposed to receive a special treatment which is, you  
16 know, defined in NEI guide.

17 However, it's sort of special treatment  
18 that actually even plans which have got permission to  
19 use 50.69, don't know what to do with that. So it has  
20 not been realized in practice yet.

21 Basically, it's a little less of what  
22 safety grade requirement because you know, those  
23 components are often already procured so you can only  
24 change things to the -- so, and basically, the special  
25 treatment is there to cover for that not being safety

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1 grade.

2 And it's not really, I mean, it's much  
3 more straight forward just to have that safety grade  
4 than trying to define what that special treatment is.

5 CHAIR BLEY: My proposal is, we leave it  
6 on the list. I will write something up. I will  
7 probably phrase it in terms of special treatment  
8 because I have some of great concerns, but we'll get  
9 to that when we have a letter to talk about. I'd  
10 rather not talk more about it today, unless there is  
11 a different aspect of it somebody wants to bring up.

12 Okay, let's go up to the right-hand side,  
13 Number 4. QHOs should not be used.

14 Number 4 actually was a little more  
15 broader than that. And also dealt with, should there  
16 be a tiered approach. And I guess I'd entertain  
17 comments on shared approach as well as QHOs.

18 MEMBER PETTI: This is Dave. I agree with  
19 Vesna on the QHOs. I was hoping that there would be  
20 another metric that could be used, like is used in  
21 LWRs, work in CDF. But those don't work for some of  
22 the advance reactors so another metric that would be  
23 more easily implemental. But I don't have one that  
24 jumps to my mind.

25 CHAIR BLEY: Well, I do. And let me read

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1 you a little note that, I've kind of ask this Staff to  
2 discuss at our May full committee meeting. Because  
3 this area, kind of we slipped past it at last month's  
4 meeting.

5 Back when we did, looked at LMP, we talked  
6 about this in a little more detail. I've asked the  
7 Staff to discuss some of the descriptions of overall  
8 or aggregate missed criteria.

9 Back in NUREG-1860, before it came out was  
10 called the technology neutral framework, they ended up  
11 pointing to the QHOs, and I don't remember exactly why  
12 that happened, I was involved with that report, but  
13 they also had an appendix that talked about other risk  
14 measures that might be used. And one of the favorites  
15 is a complimentary accumulative distribution that's  
16 actually a limit line. And your curve ought to fit  
17 under that.

18 And the Staff got a letter, I think  
19 everybody saw it, from Rich Denning and that other  
20 guy, that discuss this issue in detail and recommended  
21 strongly the other way. But didn't talk about some of  
22 the things Vesna has brought up about the practical  
23 difficulties of using the QHOs.

24 And UCS brought up some points about that  
25 as well. So, I think, I'm hoping for some good

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1 discussion to that.

2 If we go to the LMP document, they  
3 describe using QHOs, but I don't remember. They don't  
4 give you much deception of alternatives. So we will  
5 kind of fair something out there. But thanks for your  
6 comment on top of that, Dave.

7 If the Staff has worked out a way to deal  
8 with this, I think that will be interesting. If you  
9 read Vesna's comments in the long list, she points out  
10 some things that I asked them to go back and retrace.  
11 I think I know where some of those numbers came from,  
12 but I'm not positive I have the right source. I've  
13 mentioned it to them.

14 And if they have something they want to  
15 say more about it we'll hear. But I'll put something  
16 in the draft that leans this way.

17 So I would highlight that one, Derek, in  
18 bold. And if anybody more wants to say something more  
19 about that that's okay. If anybody wants to say more  
20 about the two-tiered process, since I had them lumped  
21 together, I'd appreciate that too.

22 But, Derek, right after that hit one hit  
23 a character return so we get another bullet in there.  
24 And put, two-tiered approach.

25 I personally might have found the last

1 version of Subpart B a lot more understandable on what  
2 the Staff means through their two-tiered approach. I  
3 was really baffled early on.

4 But I'm looking for any comments from  
5 Members. Is there anything we want to say or do we  
6 want to avoid talking about the two-tiered approach?

7 MEMBER PETTI: I sort of agree with you,  
8 Dennis. The second one I thought was an improvement  
9 and be interested to see what sort of feedback they  
10 get from industry.

11 MEMBER DIMITRIJEVIC: My opinion that this  
12 two-tier introduce unnecessary complications. So, I  
13 mean, I think they can all be handled to the Tier 1,  
14 the team.

15 I wanted to ask something, Dennis, if you  
16 would just -- which I didn't really put in my writing.  
17 And I discussed them with Joy. Some of those things  
18 came up.

19 Like, for example, does the Level 3 PRA  
20 include some interlogical data?

21 We can have, you know, the situation,  
22 actually the QHOs depend on the climate change. It  
23 does include economical data of the region, which  
24 effects the evacuation, the efficiency.

25 So, it depends on so many certain datas.

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1 And not only that, but also it can only be done in  
2 calls. If you have a location that doesn't make sense  
3 to do that to some other location.

4 So I think that I'm totally unpractical.  
5 And they definitely should come with some certainty.  
6 I don't really know how, they should actually  
7 integrate to adjust from the Tier 1 to Tier 2. So  
8 that's what I wanted to add.

9 CHAIR BLEY: Well, that kind of thing one  
10 has to do on a design specific basis because the  
11 surrogates can vary wildly as you go from one kind of  
12 design to another.

13 Now, in some designs core melt frequency  
14 doesn't mean anything. For example. So you can't  
15 have generic, I don't think you can get generic  
16 surrogates.

17 I feel like, whether you need the QHOs or  
18 not is dependent on all that weather stuff and  
19 everything else. But the QHOs themselves are not.

20 Although UCS pointed out administrative,  
21 when they were developed, might mean, they might not  
22 be as appropriate today as they had seen 28 years ago.  
23 But I'll come up with something on that.

24 Derek, after two-tiered approach put to  
25 sub-bullets, please. And just so you hear me?

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1 MR. WIDMAYER: I hear you.

2 MEMBER MARCH-LEUBA: Excuse me, Dennis?  
3 While we're here, can we go back to the high level of  
4 what we're trying to do?

5 CHAIR BLEY: Not until we've finished  
6 this.

7 MEMBER MARCH-LEUBA: Okay. But I reserve  
8 my time.

9 MR. WIDMAYER: Did I lose Dennis?

10 CHAIR BLEY: No.

11 MR. WIDMAYER: Okay.

12 CHAIR BLEY: Oh, you got it there. Under  
13 two-tiered approach I want to sub-bullets.

14 MR. WIDMAYER: I'm ready.

15 CHAIR BLEY: Well, get a bullet up there.

16 MR. WIDMAYER: It's on my screen.

17 CHAIR BLEY: Oh, that's interesting. Not  
18 needed, confusing, is the first sub-bullet. I'm not  
19 seeing it. Other people seeing it?

20 MEMBER BROWN: No.

21 CHAIR BLEY: We'll figure that out later,  
22 get it on your computer. Leave the other sub-bullet,  
23 I forgot what I was putting in there. I'll remember  
24 in a minute. Jose?

25 MEMBER MARCH-LEUBA: Yes. Is your



1 intention to write a letter that has 27 issues with  
2 the Staff approach because --

3 CHAIR BLEY: My intention --

4 MEMBER MARCH-LEUBA: -- if that is the  
5 case, we might as well write on toilet paper because  
6 that's where it's going to end up.

7 Number two, when the public reads it  
8 they're going to say, nothing with ACRS, you see, they  
9 have 27 issues with this. What I thought we were  
10 trying to do is, get a common ACRS position on the  
11 three items we agree on and write those. Maybe five.  
12 Preferably two.

13 Can we at least, while we are going  
14 through these items, get a consensus whether they rise  
15 to the conclusions and recommendations section or is  
16 it --

17 I mean, it's okay to have a discussion  
18 about all these things, but conclusions and  
19 recommendations on the important parts. Let's get  
20 that consensus whether they rise to that or not.

21 CHAIR BLEY: Okay.

22 MEMBER MARCH-LEUBA: Otherwise, all this  
23 is wasted.

24 CHAIR BLEY: Thank you. I didn't get a  
25 chance to answer your questions because you kept

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1 pilling them on. But our intent is to do what we said  
2 earlier, and there is no intent to have 27 issue  
3 papers.

4 If anyone, the reason I'm hesitating in  
5 places, we've bolded three things now. If you don't  
6 think those rise to being in the letter, speak up now.  
7 Because we've bolded the overall structure, commented  
8 about that. We've bolded something about QHOs and the  
9 two-tiered approach and we've bolded safety  
10 significance categorizations.

11 If anybody, and that's already three  
12 issues. We've met Jose's limit. So, which of those  
13 shouldn't we have in the letter or should they be  
14 there?

15 MEMBER PETTI: So, Dennis, I think we will  
16 certainly have a long list of things we don't like.  
17 That's the nature of this Committee.

18 But I think we should strongly support the  
19 words that are there on ALARA, Part 20. I thought  
20 that the revision, the second version we saw was a  
21 good improvement.

22 And that's a really high level to, you  
23 know, that's radiation protection, that's not  
24 technology. And I would think it might be something  
25 we could put in the bold. On the like side of the

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1 ledger.

2 MEMBER BROWN: Dennis? Are you finished,  
3 Dave?

4 MEMBER PETTI: Yes.

5 CHAIR BLEY: I only want to, so that we  
6 don't, I got to get something out of this.

7 MEMBER BROWN: That's what I was going to  
8 --

9 CHAIR BLEY: Did you have something to say  
10 about 12 and 17 up there, Charlie?

11 MEMBER BROWN: Oh no, I was going to echo  
12 the thing about, how do we get it down to some more  
13 meat and potatoes items as opposed to smaller items.  
14 And so, when you're ready for that I'll speak up.

15 CHAIR BLEY: I'm not ready until it's your  
16 turn again.

17 MEMBER BROWN: Okay, that's fine. I'm  
18 happy.

19 CHAIR BLEY: Everybody has different  
20 opinions of what --

21 MEMBER BROWN: Yes. My air conditioning  
22 is fixed so I'm happy.

23 CHAIR BLEY: We had a long discussion  
24 about PRA and graded PRA and whether it's required or  
25 what that means. I'm going to highlight that one

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1 because that one we have to say something about. So  
2 Number 12 highlight.

3 And Number 17, if you remember what I  
4 showed you on the other page, we might have a list of  
5 questions at the end but they're not things we want to  
6 highlight, they're just things that we want to hear  
7 more about. That could go in there, Number 17 could  
8 go in there or not.

9 The next on our list is Greg Halnon.  
10 Greg, what's your one issue?

11 (Laughter.)

12 MEMBER HALNON: I feel left out.

13 CHAIR BLEY: Biggest issue. If you have  
14 one.

15 MEMBER HALNON: I think it's really  
16 embodied in two, but it's the one issue that we talked  
17 about earlier, the last meeting, relative to the less  
18 perspective requirements. Number 7 and Number 16 on  
19 your list.

20 I'm concerned about the filling in some  
21 subjective terms that could leave interpretation up to  
22 the designer and have caused a huge inefficiency and  
23 possibly design changes that may not be necessary.  
24 For instance, defense-in-depth.

25 It's defined in Footnote in Part 70.

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1 Section 70. 10 CFR Part 70. But it's not really  
2 defined as a requirement, it's a design philosophy, as  
3 its stated there. And I believe that was a comment  
4 that we heard in the last meeting.

5 And then Number 7 talked about less  
6 prescriptive requirements. It comes back to the  
7 ambiguity in some of the terms that we, when we use,  
8 such as defense-in-depth. Yes, there is some  
9 ambiguity there.

10 But there is also some, we talked  
11 immediate threat. The term ALARA kind of falls into  
12 that.

13 So those are the, that's my concern,  
14 Dennis. I can't get in those two sort of, but not  
15 necessarily exactly stated in those two.

16 CHAIR BLEY: Okay. So let's put one up on  
17 the right-hand side.

18 (Off record comments.)

19 CHAIR BLEY: Greg?

20 MEMBER HALNON: Yes.

21 CHAIR BLEY: Derek, type Greg and a  
22 hyphen. And then say, concerns about ambiguous  
23 language.

24 MEMBER HALNON: I think subjective would  
25 be better.

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1 CHAIR BLEY: Okay, subjective language.

2 MEMBER HALNON: Derek, I think you need to  
3 re-share your screen, we're not seeing what you're  
4 typing. It looks like it's kind of locked up on our  
5 side.

6 CHAIR BLEY: We haven't seen anything  
7 since you put the sub-bullets under two-tiered  
8 approach.

9 MEMBER HALNON: I don't even see those,  
10 yes.

11 CHAIR BLEY: No, they're not there. So,  
12 Greg, you're concerned about subjective language, such  
13 as ALARA and defense-in-depth?

14 MEMBER HALNON: Yes. I mean, that will  
15 get us to where we need to be when we start discussing  
16 it. Yes. That probably is not the language we use in  
17 the letter, if we get that far, but that would  
18 certainly be a good title for us to start talking  
19 about.

20 CHAIR BLEY: Okay. Well, I'd jump on that  
21 one a little bit.

22 MR. WIDMAYER: Did it come back?

23 MEMBER HALNON: Yes, it's there now.

24 CHAIR BLEY: Yes, we're getting there. I  
25 thought UCS had a good comment on that too, and I'm

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1 not sure where that is on here anymore.

2 MEMBER HALNON: That's Number 7.

3 CHAIR BLEY: 7, yes.

4 MEMBER HALNON: Yes. And then that's why  
5 I say, sort of embodied in that one, it's sort of  
6 embodied in Number 16 as well.

7 CHAIR BLEY: Defense-in-depth, I think if  
8 they're focusing, which they seem to be doing, on the  
9 LMP, if you read the other document we got from NEI,  
10 they have a whole section on how to bring defense-in-  
11 depth considerations of a PRA and to expand what you  
12 found in the PRA by looking at these issues of  
13 defense-in-depth.

14 And at least from me, that gets away from  
15 some of the vagueness of it, if you follow that  
16 process. On ALARA, it's been there forever and it's  
17 kind of vague, but it says, do as well as you can.

18 (Laughter.)

19 MEMBER HALNON: Yes. And that's what I  
20 talk about, same thing is, where do you stop. And  
21 what is acceptable. It's in the eye of the beholder  
22 at times. And that's what my concern is, is work.  
23 Where do you stop with that.

24 CHAIR BLEY: I believe that Industry 7,  
25 it's been a while since I have looked, is ALARA is

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1           apparently defined in Part 20, is that right?

2                   MEMBER HALNON: Yes. It is part of, it is  
3 whole section of Part 20.

4                   CHAIR BLEY: So, it is in regulation.  
5 That is something you have to do already.

6                   MEMBER HALNON: Right. It's already  
7 there.

8                   CHAIR BLEY: But we have you saying that's  
9 vague and hard to use, and we have Dave saying it's  
10 one of the best things here.

11                   MEMBER HALNON: I don't disagree it's a  
12 good thing, I think we got to be careful how it's used  
13 as a checkbox because, again, when you achieve it,  
14 it's a, if you achieve what's in Part 20, and I'll  
15 have to go back and look at the language again it's  
16 been a long time --

17                   CHAIR BLEY: Me too.

18                   MEMBER HALNON: -- that's fine. But just  
19 the term, as low as reasonably achievable, the word,  
20 reasonably achievable, all those things could be, like  
21 I said, in the eye of the beholder.

22                   So if there is some perspective  
23 requirements that say, okay, you've achieved it, I'm  
24 good with that. And I'll go back and take a look at  
25 it, Dennis.

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1 I mean, I had not been emerged in this  
2 like you all have so I'm open to coaching on some of  
3 this stuff if it's been talked about before or if it's  
4 already somewhere else.

5 CHAIR BLEY: No, we haven't talked about  
6 ALARA. We've talked about defense-in-depth in a  
7 couple other places.

8 MEMBER HALNON: But what really struck me  
9 was, I think we saw the term immediate threat. And I  
10 think we talked briefly about that during the  
11 presentation in the last meeting. Again, what's  
12 immediate and what's a threat.

13 Is it something that could happen in an  
14 hour, something could happen immediately. I mean,  
15 some of it's obvious, some of it could not be obvious.

16 And then, this gets back again to the  
17 conversation we had about statements of  
18 considerations. When you have to go back and get,  
19 what do they really mean by that.

20 So, it falls into that whole category of  
21 statements of considerations. So, I think just --

22 CHAIR BLEY: I think that's a good place  
23 to deal with this.

24 MEMBER HALNON: It may be. But just what  
25 you have written there will certainly get us around

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1 and keep it highlighted in our minds about what is  
2 subjective and what is not. And I think that could be  
3 in response to some of the comments we see.

4 CHAIR BLEY: Okay. Derek, would you copy  
5 this one and put it as a second sub-bullet over under,  
6 include key explanations up in the top box on the  
7 left? And I'll try to weave that into this overall  
8 discussion.

9 And I got some notes from what you just  
10 said, Greg.

11 MEMBER HALNON: Okay.

12 CHAIR BLEY: Dave, though, I want to,  
13 because ALARA is one that's always left me kind of  
14 feeling fuzzy. I forget just how the Staff had the  
15 language in the current write-up of the rule. I kind  
16 of think they said you have to use ALARA, and referred  
17 us back to Part 20. Is that right or does anybody  
18 remember?

19 MEMBER PETTI: That's what I recall. As  
20 opposed to defining it again here and potentially  
21 having a conflict in terms of --

22 MEMBER KIRCHNER: Right, Dave. And they  
23 had stakeholder input, Dennis, on that particular  
24 matter.

25 CHAIR BLEY: Yes, I know.

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1 MEMBER KIRCHNER: They made the  
2 modification to refer to 10 CFR 20.

3 CHAIR BLEY: Yes. And since we're  
4 talking, Walt, it's your turn. It's your big --

5 MEMBER KIRCHNER: Oh. I was offline for  
6 a bit. We're having a little bit of Rocky Mountain  
7 springtime here. A lightning strike and lost the  
8 power, lost the internet. Took a while to boot up.  
9 So, is it my turn to make general comment?

10 CHAIR BLEY: Yes. We're going around the  
11 table picking --

12 MEMBER KIRCHNER: Okay.

13 CHAIR BLEY: -- picking your favorite  
14 issue. If we've already talked about it while you  
15 weren't looking, I'll tell you jump to a different  
16 one.

17 MEMBER KIRCHNER: Okay. Well, I was off  
18 for about five or ten minutes.

19 So, my favorite issue is in your table.  
20 It's really a combination of, in the order I would  
21 write them, 3, 2 and 5.

22 And basically it's, I would look, and we  
23 had stakeholder input, I think it was from the Union  
24 of Concerned Scientists. I thought the comments from  
25 them were perceptive.

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1           But, again, approaching this from a white  
2 cycle and a design standpoint, I keep testing against  
3 50 and 52. That's in your Item 3. See if we would  
4 achieve the same level of safety. And 53, if not  
5 better.

6           I don't think it's a requirement for it to  
7 be better but because 50, 52 and now 53 all share the  
8 same top level of safety criteria, which is the dose  
9 at the exclusionary boundary in the low population  
10 zones, so I won't repeat those numbers.

11           But I look at it from that standpoint and  
12 I say, okay, the safety criteria is consistent but the  
13 safety functions aren't. And in my mind those safety  
14 functions, those principles, should be enumerated in  
15 the rule. I think that's achievable.

16           And it's not just the fission product  
17 barriers or radionuclide barriers would be a more  
18 inclusive term.

19           And I do strongly believe that you need at  
20 least the equivalent of GDCs one through five. One  
21 being QA, et cetera, et cetera, I won't go through  
22 them, as part of the rule at a very high level.  
23 Because those don't just apply to design, they apply  
24 across maintaining the safety envelope for the plant  
25 throughout the lifecycle.

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1           So I like the lifecycle approach, but I  
2 think there are things that cross cut that lifecycle.  
3 And QA is one of them in my short list, and so are  
4 designing for external hazards, internal hazards and  
5 environments, fire protection, et cetera, et cetera,  
6 common cause failure of shared systems.

7           So, I would like to see more, a more  
8 perspective dealing with those key matters. And  
9 again, those are Numbers 3, 2 and 5 on your list.  
10 Thank you.

11           CHAIR BLEY: You got to let me to figure  
12 out what to do with that. Since you grabbed three of  
13 the issues.

14           Over where your cursor is, Derek, refer a  
15 more prescriptive approach to safety functions. Next  
16 bullet. Safety criteria are consistent with Parts 50  
17 and 52. Next bullet. Safety functions are not.

18           And then down in the next column, I mean  
19 next row, need to define overarching GDC for all  
20 advance reactor concepts. And then in parenthesis  
21 put, GDC-1 dash 5.

22           Walt, do those two rows kind of capture  
23 what you were after?

24           MEMBER KIRCHNER: Yes. Those are good  
25 markers. Thank you, Dennis.

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1           MEMBER PETTI: Can I ask some explanation  
2 because I'm a little confused, Walt. There's a whole  
3 section on QA in the rule.

4           Some of the GDC-1 through 5 are in the  
5 language today, they're just spread in different  
6 parts. So is this more of a format that you'd prefer  
7 to see it all together and in a big chunk somewhere or  
8 --

9           MEMBER KIRCHNER: I think it belongs in  
10 Part B, because it's not just design, it's not just  
11 procurement and it's not just operation and it's not  
12 just decommissioning. These things cut across  
13 maintaining that safety envelope through the lifecycle  
14 of the plant.

15           I would just pull them up and be a lot  
16 more explicit and less freeform. I know we have a  
17 guidance that the reg guide, I'm probably going to  
18 cite the wrong number, 1.232, suggested advance  
19 reactor design criteria. And then there is a separate  
20 cutout for gas reactors and sodium reactors. But  
21 that's guidance, that's not a requirement.

22           And at some point it seems to me that you  
23 can extract the essence of what's in the general  
24 design criteria, Appendix A. Certainly 1 through 5 is  
25 a great introduction to things that should carry

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1 through the lifecycle of the plant.

2 And again, one being QA. So, defacto  
3 Appendix B.

4 CHAIR BLEY: Derek, get me straight.  
5 Would you hit a character return and get a new bullet  
6 down there and say, refer all QA and GDC-1 to 5, like  
7 material in one place, in Subpart B, rather than  
8 spread out across construction, operation and  
9 decommissioning.

10 Okay. Now, for everybody, there is two  
11 rows here. To me we have, we agree with, let's take  
12 the top row. Refer a more prescriptive approach on  
13 safety criteria. We said both. Back to safety  
14 criteria consistent with 50.52 but the functions are  
15 not.

16 Do we have consensus or disagreement on  
17 whether this ought to be in the letter?

18 MEMBER REMPE: So, Dennis, I guess I'd  
19 like to speak up on, about the critical safety  
20 functions. Within the regulatory regulations and the  
21 guidance that exists, the Staff has not always been  
22 consistent on what the critical safety functions are.

23 And in light of the fact that we're going  
24 to have a wide range of designs with different types  
25 of challenges, some may have chemical issues, some may

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1 not, et cetera. I actually thought the Staff had a  
2 good approach that, we are the Nuclear Regulatory  
3 Commission so we're going to be worried about  
4 radiation release, but we realized there are other  
5 underlying safety functions that could preclude  
6 radiation release.

7 And so, as long as they would elaborate on  
8 what those other challenges are, which is not an all-  
9 inclusive list, because God knows what somebody will  
10 come in with, but if they would include controlled  
11 reactivity in that underlying list.

12 And in deference to the point that Walt  
13 has brought up a lot of times that controlling or  
14 preventing or keeping radiation release from happening  
15 means you have to make sure those barriers remain  
16 intact. So maybe some word changes. I actually like  
17 their approach.

18 MEMBER KIRCHNER: Well, Joy, this is Walt,  
19 let me just give you an example of where I kind of  
20 object. We're writing a rule, and then the rule says  
21 such as this or such as that.

22 And so, such as wording, not to just make  
23 that the issue, the wording, that can be changed, but  
24 their giving examples. But if you step back and say  
25 to yourself, what is unique about a nuclear reactor

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1 that's common.

2 And I've tested, I've tested this in my  
3 own mind many, many times to mean, first of all, there  
4 is not an advance reactor concept coming in that  
5 hasn't been tried in one form or other. And so, there  
6 are fundamentals here when it comes to safety  
7 functions.

8 And I don't want to belabor it, but it's  
9 reactivity control and shutdown. It's keeping the  
10 fuel intact and it's protecting and maintaining the  
11 barriers to radionuclide transport.

12 And those are essential requirements of  
13 almost any reactor. And I just offer to you and  
14 others that, go test against them and see which one  
15 you wouldn't eliminate.

16 But if they're not there, then they're not  
17 requirements. So, one could say, who cares about  
18 reactivity control, who cares about what the fuel form  
19 morphs into, et cetera, et cetera, as long as you meet  
20 the dose.

21 That's, boy, that's an open-ended  
22 invitation. I think to use the words of one of the  
23 stakeholders, chaos.

24 MEMBER REMPE: So I'll give you that I  
25 shouldn't have said such as, I should say including

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1 these and other challenges. But I, again, knowing  
2 that, I struggled with what I've seen in the  
3 regulation and other places and why they aren't  
4 consistent.

5 And I kind of thought this was a nice  
6 approach, but it's one member's opinion. I'll go with  
7 the flow on what everyone else wants.

8 MEMBER MARCH-LEUBA: Yes, Joy, what I  
9 think Walt is trying to say is that there are some  
10 general design principles, like being able to control  
11 reactivity, being able to keep the fuel in one place.  
12 That surely part of the rule and they're not.

13 MEMBER REMPE: Oh, and I think they are.  
14 Just because they're --

15 MEMBER MARCH-LEUBA: They're hidden.

16 MEMBER REMPE: -- controlled reactivity,  
17 you'll have radiation, or you could very easily have  
18 radiation release.

19 And so, I think that that doesn't diminish  
20 the need to look for these other things. But the  
21 primary concern of the Nuclear Regulatory Commission  
22 should be trying to keep radiation from coming out.

23 MEMBER MARCH-LEUBA: Yes.

24 MEMBER REMPE: Chernobyl happened.  
25 Radiation came out. There were a lot of other events

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1 that happened to, but radiation came out.

2 MEMBER MARCH-LEUBA: The only --

3 MEMBER KIRCHNER: Yes, but you need  
4 reasonable assurance and, in effect, you just don't,  
5 can't rely on one barrier at the end and say it  
6 doesn't matter what happens inside this envelope.

7 MEMBER REMPE: I don't think that's what  
8 they are saying in what I read. I got the impression  
9 -- But, again, that's my interpretation. It's just  
10 that -- It's a way to make sense out of the fact that  
11 the other regulations are not necessarily consistent.

12 MEMBER MARCH-LEUBA: Joy, have you ever  
13 performed a calculation that was wrong?

14 MEMBER REMPE: Oh, yes. Have you?

15 (Laughter.)

16 MEMBER MARCH-LEUBA: I have done  
17 thousands. Okay, so you're saying that we are going  
18 to let this applicant perform calculations, which we  
19 know from personal experience they are sometimes wrong  
20 and go with that? I don't think that is wise.

21 MEMBER REMPE: That's not what they are  
22 saying. They are saying that this is the primary and  
23 these others are secondary, but everything has to be  
24 considered.

25 I never saw them say that you don't, a

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1 chemical explosion may not result in radiation release  
2 and then it becomes something for the EPA to worry  
3 about, but it could, and so it's an underlying thing  
4 is what I am getting.

5 But maybe we need some, you know, pilots  
6 to understand that, but I didn't understand that.  
7 Does everyone else think that those underlying ones  
8 mean you don't have to do them all the time?

9 MEMBER PETTI: That's not how interpreted  
10 it. I tend to agree with what you are saying.

11 MEMBER REMPE: Which one are you saying,  
12 me or what Jose was saying?

13 MEMBER PETTI: You.

14 (Simultaneous speaking.)

15 MEMBER REMPE: Yes. Okay, so we're on the  
16 same thing. That's what I saw, so maybe we all need  
17 to go look at the text again, but the way that it was  
18 explained to us I thought that's what he was saying.

19 CHAIR BLEY: Well, you're right, we have  
20 to go with what's in the text and --

21 (Simultaneous speaking.)

22 MEMBER MARCH-LEUBA: But I think -- I  
23 think that Walt -- I mean this is Walt's time. Walt  
24 has been very vocal about at a minimum you will have  
25 a reactivity control as a general principle and if you

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1 want to back down on that I will wait until my turn to  
2 put it --

3 MEMBER REMPE: No, I agree, but it should  
4 be an underlying one but I'm not sure that it needs to  
5 be the, you know, suddenly then you probably should  
6 have five plus some others, whereas this, you know,  
7 that's what I liked about what this map did, including  
8 --

9 (Simultaneous speaking.)

10 MEMBER MARCH-LEUBA: Yes. You know, what  
11 we are replacing it with is control the heating rate.  
12 That's the Tier 1 safety principle on Part 53, control  
13 heat operate.

14 And I ask control heat operate to do what.  
15 I can control my heat operate to 180 percent power.  
16 I am controlling it. I mean it just makes no sense.  
17 You should set up what your principles are and control  
18 heat operate is not the principle.

19 It's a means to achieve something. Yes,  
20 tell me what something you want to do.

21 MEMBER PETTI: But then you could argue  
22 the same on heat removal, control heat removal.

23 MEMBER MARCH-LEUBA: And I do. And I do.

24 MEMBER PETTI: They are --

25 (Simultaneous speaking.)

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1                   MEMBER MARCH-LEUBA: Control heat removal  
2 to achieve something and that something is your safety  
3 goal.

4                   MEMBER PETTI: The thing about the  
5 approach, because it follows from LMP, that I like is  
6 that you control these things only to the level needed  
7 to prevent the release from occurring, and that's what  
8 the structure sort of tells you.

9                   MEMBER MARCH-LEUBA: So then remove --  
10 (Simultaneous speaking.)

11                  MEMBER MARCH-LEUBA: Remove those two,  
12 they are useless, or you are going to only two  
13 releases. The releases are your safety control,  
14 therefore, what are the other two things doing.

15                  That's how you get there. If you can get  
16 there with a different, in a different way, fine.

17                  MEMBER PETTI: But the concern is the  
18 opposite, that you impose requirements because you  
19 want to flow down requirements down to lower levels  
20 that in the end you don't need because it doesn't put  
21 dose out at the boundary.

22                  That's the concern I have, is that you  
23 flow these requirements down, because we've got all  
24 the different thought processes here on how this works  
25 based on our experiences with different reactor

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1 technologies, and in the end I don't have any problem  
2 saying, you know, do this if doses are going to exceed  
3 acceptable levels, because then it says then I need to  
4 do that.

5 But there will be conditions to the PRA  
6 where you don't, it doesn't challenge that ultimate  
7 top tier safety function. So do I need the same level  
8 of protection and design and QA for something that  
9 doesn't affect the bottom line?

10 MEMBER MARCH-LEUBA: Yes, but --

11 MEMBER PETTI: That's the balance here  
12 that I think they are trying to, they are struggling  
13 with because you can't do this across all the  
14 technologies. It's very difficult.

15 MEMBER MARCH-LEUBA: That is -- The  
16 problem is that Joy, I am going to use your name in  
17 vain, Joy, performed that dose calculation and she  
18 said there was no dose. Well, what if she was wrong?

19 MEMBER REMPE: She has to consider  
20 uncertainties in Part 53. I am looking at 53.230 and  
21 the primary safety function is limiting the release of  
22 radioactive materials from the facility and must be  
23 maintained for routine operations and LBEs over the  
24 life of the plant.

25 Additional safety functions, supporting

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1 the retention of the radioactive materials during  
2 routine operations and LBEs. And then they use the  
3 "such as," Walt, and so maybe they need to say  
4 "including," and they list controlling heat  
5 generation, heat removal, and chemical interactions  
6 must be defined, but I would agree that we need to add  
7 control reactivity.

8 CHAIR BLEY: Well, and, you know, we can  
9 look at this thing in different directions and, you  
10 know, Jose critiqued Joy because her calculations  
11 might be wrong. Well, his calculations on ability to  
12 control reactivity might be wrong as well, or about  
13 how likely it is that their shutdown mechanism will  
14 work.

15 I think we are all kind of in the same  
16 place, but we're coming at it from different  
17 directions. What I might ask for, if you folks are  
18 willing, is if -- Think about this if you are willing,  
19 if Dave and Joy would kind of write a paragraph or so  
20 about how they are thinking about it and if Walt and  
21 Jose could get together and write a paragraph on how  
22 they are thinking about it and then send those to me  
23 and I will see if there is anything we can do except  
24 just show everybody those paragraphs when we get  
25 together again.

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1           This one is a little contentious and I --  
2           Derek, under "Safety functions are not" add another  
3           bullet up there in the second row on the right side,  
4           "Some think the way the Staff has laid out these  
5           issues is appropriate." That will just leave it so we  
6           are thinking about.

7           We've got to say something about this, but  
8           we're going to have to figure out what. Maybe we'll  
9           have two sets of added comments and not say much as a  
10          committee.

11          Would you two groups of two be willing to  
12          send me something by next Tuesday? When does our  
13          meeting start next week? By next Tuesday.

14          MEMBER MARCH-LEUBA: The meeting is  
15          Wednesday afternoon.

16          CHAIR BLEY: Yes. If you would be willing  
17          to send me a paragraph each by next Tuesday I will  
18          either keep them both intact or try to do something in  
19          between, because I think this is one where we will not  
20          resolve here.

21          (Simultaneous speaking.)

22          MEMBER KIRCHNER: I can take a stab at it  
23          and socialize it with Jose from my perspective,  
24          Dennis.

25          CHAIR BLEY: Thank you.

1           MEMBER KIRCHNER: If I could just make one  
2 observation though. The such as's that are in the  
3 current language to me are functional design  
4 requirements or specifications.

5           Of course you want to avoid chemical  
6 attack. Of course you don't want to overheat the  
7 materials and such. That's why I assert that you can  
8 raise it to a higher level and say things like  
9 maintain the integrity of the barriers.

10           And what threatens the integrity, that's  
11 the next level down. So just to share how I have been  
12 thinking about it, and I think that is consistent with  
13 some of the comments Jose made.

14           CHAIR BLEY: Thank you, Walt. I  
15 appreciate your offer. Joy or Dave, would you be  
16 willing?

17           MEMBER REMPE: Sure. I -- Dave, can we  
18 get this done in the next day and a half because we  
19 are leaving town on Friday since we're vaccinated?

20           (Laughter.)

21           MEMBER REMPE: Okay?

22           MEMBER PETTI: Yes, we can do that.

23           CHAIR BLEY: Okay. Thanks. Now Walt had  
24 a second row here about the GDCs. Is that  
25 controversial, too, or is that not? Because he

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1 doesn't say keep all of the GDCs as they are, he is  
2 focusing on the key set and bringing all the QA stuff  
3 together in one place.

4 That is something I know the Staff said  
5 they have been thinking about which way works best.

6 MEMBER BROWN: I'll be commenting on the  
7 other ones when I get around to my turn.

8 CHAIR BLEY: The other whats?

9 MEMBER BROWN: The other GDCs.

10 CHAIR BLEY: Okay. We're a long way off.

11 MEMBER BROWN: I know. I know.

12 CHAIR BLEY: Okay. I am going to leave  
13 this as not bolded, but I am going to do something  
14 with the second one and it might not be a whole lot  
15 and then we'll see what happens on the first one.

16 Now, Jose, you were probably going to do  
17 these two yourself.

18 MEMBER MARCH-LEUBA: Yes. Just a moment.  
19 I am going to turn my fan off. My air conditioner  
20 died, so it's kind of hot in here.

21 Thanks for Walt we got a bit of my Item 13  
22 which says the rule does not define general design  
23 principles. It should. Walt concentrated on one  
24 through five. I think the general design criteria  
25 Appendix A has like six or seven sections.

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1 I think those sections is a principle  
2 about shall maintain containment, about shall maintain  
3 radioactivity control, but we'll leave it at that.  
4 Let me concentrate on my item 14.

5 The Staff is proposing to remove the  
6 single failure criteria and replace it I suppose, I am  
7 not clear, by some risk-informed criterion, meaning  
8 that you have your design basis accidents and you add  
9 failures according to the frequency.

10 I don't think they have thought this  
11 through because now you are going to have a loss of  
12 fuel heating, a DBA, with failure of Pump A, a loss of  
13 fuel heating with failure of Pump B, a loss of fuel  
14 fitting with a failure of the air conditioning in the  
15 control room, a loss of fuel heating associated with  
16 a loss of onsite power.

17 Instead of having 12 or 18 DBAs we're  
18 going to have hundreds if not thousands of DBAs and  
19 all of this must be performed scientifically, and by  
20 that I mean with Chapter 15 rules using approved  
21 methods and codes and documenting this AR.

22 I think that removing the single failure  
23 criteria is a mistake. First, the applicants are not  
24 going to like to run a thousand DBAs and, number two,  
25 it allows somebody to have a design with one control,

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1 one safety relief valve, or only one protection system  
2 channel, because, hey, if it doesn't fail I only need  
3 to have one. I think it's crazy.

4 I think we should make it bold in that  
5 removing the single failure criterion that has worked  
6 so well for 50 years on for, and lasting to the normal  
7 operation and DBAs is, it's a bad idea.

8 (Simultaneous speaking.)

9 CHAIR BLEY: Hold on. Derek, where you  
10 are put in "Do not remove single failure criteria."

11 MEMBER KIRCHNER: Dennis, this is Walt.

12 CHAIR BLEY: Just a minute.

13 MEMBER KIRCHNER: You know, Jose's point  
14 ties into defense in depth and it also, how you go  
15 about -- I know Greg had mentioned the subjectiveness  
16 of defense in depth, but if you look at what the IAEA  
17 is doing they have a variant of, it's the combination  
18 of single failure and defense in depth, this idea.

19 And we have seen it from one of our  
20 applicant's topical reports how they are using kind of  
21 what I will call two lines of defense approach to  
22 failure of systems.

23 I guess we have new terminology. I will  
24 use old terminology, safety-related systems. There  
25 may be some merit in looking at the IAEA approach.

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1 The number of the safety guide escapes me right now  
2 from memory, but that's a variant on single failure  
3 criteria and defense in depth by looking at your  
4 system systematically and looking for what I will call  
5 two lines of defense.

6 CHAIR BLEY: Thank you, Walt. I'll add a  
7 next bullet here, Derek, on "Consider IAEA approach."  
8 I am going to speak the other way because, I don't  
9 know, I think it's not crazy. I think it's pretty  
10 reasonable.

11 And what we found in the first few PRAs  
12 that were done back 40 years ago is that double and  
13 triple failures were the kinds of things that were  
14 contributing most to major releases.

15 Now it's just, well, of course, that's  
16 because we had a single failure criterion, but the  
17 single failure criterion began way back about 1960 I  
18 think, maybe a little earlier, because we couldn't  
19 calculate the reliability of complex systems at the  
20 time.

21 So there is an approximation to the  
22 accounting for possible failures. When you look at  
23 all possible failure modes in all equipment and  
24 combine those together single failures tend not to be  
25 very high on the list. It's multiple failures of

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1 different kinds.

2 Those are covered when you do a systems  
3 analysis, and there is an analogical term which is  
4 fault trees and the like, and it's very effective.  
5 Some single failures are really likely, some are  
6 really unlikely, and some people because they couldn't  
7 deal with them just decided were so unlikely we  
8 wouldn't analyze them and we wouldn't consider a  
9 rupture of the reactor vessel at some point, so I  
10 think it's already covered.

11 When you do that kind of analysis what  
12 experience has shown is that there is no way you get  
13 a high reliability system, and that's one with a  
14 failure rate like one in a thousand or better, unless  
15 you have redundancy and sometimes even diversity.

16 So nobody can get away with building, you  
17 know, one of this and one of that because they can't  
18 possibly show the reliability to prevent releases.  
19 You know, it's an assumption of what would happen that  
20 doesn't conform with what I think is reality.

21 So I'd like another bullet there saying  
22 "Agree with the Staff." That's good enough for now.  
23 I think this one is worth having a discussion in the  
24 letter of both sides and I would ask the Staff to deal  
25 with this in some detail in their presentations next

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1 week. I'm not sure what they will be able to do or  
2 what they plan to do, but we'll hear something from  
3 them in this area as well.

4 I understand where Jose is coming from.  
5 I think you said one thing which I don't think would  
6 be right, is when they define, after they define the  
7 design basis events when they get to design basis  
8 accidents and apply the very conservative criteria of  
9 Chapter 15 to them.

10 They don't pick the failure based on the  
11 most frequent, they pick it based on what is severe.  
12 Now that's something that we can talk about in future  
13 meetings, but I am opening the floor to other people  
14 now to talk about this --

15 (Simultaneous speaking.)

16 MEMBER MARCH-LEUBA: Dennis, I mean if you  
17 remove adding the most severe failure to your analysis  
18 in Chapter 15 using a scientific calculation then you  
19 have to put frequency into Chapter 15. You have to  
20 calculate all of them.

21 CHAIR BLEY: Yes, that's right.

22 MEMBER MARCH-LEUBA: Which means your DBAs  
23 will become hundreds if not thousands.

24 CHAIR BLEY: But in Chapter 15 you don't  
25 do them just all of the conservative assumptions you

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1 use in Chapter 15.

2 MEMBER MARCH-LEUBA: You don't use  
3 conservative assumptions in Chapter 15. All you say  
4 is only what is conservative, only safety-related  
5 equipment works.

6 (Simultaneous speaking.)

7 MEMBER MARCH-LEUBA: That's the really  
8 fine --

9 CHAIR BLEY: -- conservative.

10 MEMBER MARCH-LEUBA: That's how you define  
11 safety-related equipment, is you run it and if you  
12 need it it's safety related.

13 (Simultaneous speaking.)

14 CHAIR BLEY: -- conservative assumption.  
15 We don't -- It will not be done in the PRA, but it  
16 will be done for the, if you read beyond (p) it will  
17 be done for the ones that are picked as design basis  
18 accidents.

19 MEMBER MARCH-LEUBA: Yes, but you have to  
20 -- If you remove the single failure criterion from the  
21 DBAs now you have to add failures to your Chapter 15  
22 DBAs and run them the way -- because if you said I  
23 don't need this component to be a safety-related  
24 because I didn't analyze it, if it fails, of course  
25 it's not going to be safety related because you didn't

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1 analyze it.

2 CHAIR BLEY: Chapter 15 kind of analysis.

3 MEMBER MARCH-LEUBA: Chapter 15 only says  
4 if you use it it's safety related.

5 CHAIR BLEY: Yes.

6 MEMBER MARCH-LEUBA: If you give it credit  
7 it's safety related.

8 CHAIR BLEY: Now, but --

9 (Simultaneous speaking.)

10 MEMBER MARCH-LEUBA: If you are going to  
11 start giving credit to a non-safety-related system  
12 nothing is safety related because you get credit for  
13 it.

14 CHAIR BLEY: Go back and read the LMP.  
15 When you go to analyzing the so-called design basis  
16 accidents and they do it in a conservative basis they  
17 will require safety grade equipment to do these  
18 calculations.

19 MEMBER MARCH-LEUBA: Yes.

20 (Simultaneous speaking.)

21 MEMBER MARCH-LEUBA: But in the past, up  
22 to today, we require all safety grade equipment that  
23 is required to survive the DBA with one failure. In  
24 the future, following the proposed Part 53, you  
25 require only the safety grade equipment that is

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1 required to survive the DBA if everything else works.

2 CHAIR BLEY: No, no, that's not true. You  
3 misread their intent. If you go look at the LMP,  
4 which they are focusing on, that is not the  
5 assumption.

6 MEMBER MARCH-LEUBA: Well --  
7 (Simultaneous speaking.)

8 CHAIR BLEY: It would be a much more  
9 optimistic assumption than you see in the PRA where  
10 everything, everything, safety grade and non-safety  
11 grade, is allowed to fail in any numbers depending on  
12 how likely it is for that to happen.

13 MEMBER MARCH-LEUBA: I'm not with you,  
14 Dennis, but I give the remainder of my time.

15 CHAIR BLEY: Well, but then you give it,  
16 because I won't do a good job on it. I am going to  
17 write up something in this area and, Jose, I would  
18 appreciate it if you could give me a short paragraph,  
19 or a long paragraph, or two, on why we should keep the  
20 single failure criteria.

21 If you are giving examples about what bad  
22 things will happen if you don't be careful that you  
23 are right. Who is next on my list?

24 MEMBER PETTI: Dennis?

25 CHAIR BLEY: Yes.

1                   MEMBER PETTI: I just want to say I tend  
2 to disagree with you on single failure criteria. With  
3 some of these advanced systems we just aren't smart  
4 enough to know what the right failure should be in  
5 terms of the single failure, and that's what the risk-  
6 based approach will give us, is some better insight  
7 and make us be smarter in terms of how one approaches  
8 that.

9                   MEMBER MARCH-LEUBA: Well, Dennis is aware  
10 really they are going to not have any failures when  
11 they are on Chapter 15 analysis.

12                   CHAIR BLEY: No, no, no, that's not right,  
13 I don't think. We'll quiz them on that next week when  
14 they come and talk to us, but be sure to quiz them on  
15 that.

16                   If that's right that's something that  
17 doesn't make any sense, I agree with you.

18                   MEMBER MARCH-LEUBA: Well, if you --  
19 Either you pick the worst of the single failures that  
20 you are going to analyze in Chapter 15 or you don't  
21 pick any, or you do a full frequency-based analysis in  
22 which you pick the failures that are more, that do not  
23 bring above or below ten to the minus 4, in which case  
24 you have to run hundreds.

25                   You tell me what is it they are trying to

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1 do and see how the language requires that.

2 CHAIR BLEY: You write down what you think  
3 they are doing and we'll try to talk about that with  
4 them, because I think you got part of that upside  
5 down.

6 MEMBER DIMITRIJEVIC: Dennis, I have --  
7 This is one of the issues I didn't write the thing  
8 because it was not clear in my head. Even I always  
9 supported this informing Chapter 15 I tend to agree  
10 here with Jose that this could be hundreds of  
11 sequences coming into this and it is not clear how it  
12 will work in practice.

13 So I think this is a very good idea and we  
14 would be absent to do some pilot studies, that they  
15 should maybe do a pilot study on this to see how  
16 practical is this excluding single failure criteria  
17 and if it will result in some really good streamline  
18 practice, which I am not sure.

19 That's what I want to say. I am not sure  
20 of what we are replacing single failure criteria with  
21 and it could be a hundred sequences to that. So  
22 that's why I think maybe we should propose that this  
23 is a good candidate for this type of application.

24 CHAIR BLEY: Now you've got your fifth  
25 issue on the table. We'll talk about that in a little

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1 bit. But, yes, I agree with you, I think this would  
2 be a good place.

3 I also think back in, you know, 1960 the  
4 appendix that applied this very similar approach to an  
5 OWR gives you a lot of good ideas about why you don't  
6 get hundreds and hundreds of sequences for looking at  
7 it from a Chapter 15 perspective.

8 So there is one pilot, but it isn't a  
9 pilot of exactly the same process that we've got  
10 today, but it's pretty damn close. But, yes, I think  
11 the idea of the pilot is important and I hope somebody  
12 else talks about it.

13 But right in the next row, Derek, put "We  
14 think there should be pilot studies applying the new  
15 rule." Make that one bold. Maybe we'll get some  
16 extra things on here.

17 So up where it says "Do not remove single  
18 failure" I don't want that. Highlight all three of  
19 those bullets about single failure and put (Audio  
20 interference.) But we'll have something that discusses  
21 this and it will probably have a -- Rather than what  
22 I said earlier about having everything either a  
23 complete consensus or added comments I think this is  
24 one that we'll have provided a discussion of the  
25 competing effects right in the letter and if Jose will

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1 write something I will try to write something, too.

2 MEMBER BROWN: Dennis, what does "Agree  
3 with Staff" mean?

4 (Audio interference.)

5 MEMBER BROWN: I -- Something is breaking  
6 up.

7 CHAIR BLEY: To not have a single failure  
8 criterion (Audio interference.)

9 MEMBER KIRCHNER: We are getting feedback  
10 from the puppy.

11 MEMBER MARCH-LEUBA: Yes. Dennis, do you  
12 mind muting yourself, see if that's coming from you.

13 CHAIR BLEY: I don't have a dog.

14 MEMBER MARCH-LEUBA: No, no, there is a --  
15 Oh, it went away. Yes, Dennis, come back up.

16 CHAIR BLEY: I don't have a dog.

17 MEMBER MARCH-LEUBA: No, no, it's not dog.  
18 It was a garble, an electronic garble, but it's gone.

19 Okay, it's gone.

20 CHAIR BLEY: I think somebody isolated.  
21 Who hasn't talked yet? Did I say Dave Petti? Dave  
22 Petti.

23 MEMBER PETTI: I think you've captured  
24 most of the concerns that I have.

25 CHAIR BLEY: Okay.

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1 MEMBER PETTI: So I just -- Yes, I --

2 CHAIR BLEY: Go ahead.

3 MEMBER PETTI: I think so at this point.

4 CHAIR BLEY: I think at this point --

5 MEMBER BROWN: I haven't spoken yet,

6 Dennis. Dennis?

7 CHAIR BLEY: Yes, sir?

8 MEMBER BROWN: Are you going to come back

9 to me or not?

10 CHAIR BLEY: Not now. I am going to call

11 a break.

12 MEMBER BROWN: That works.

13 CHAIR BLEY: Twenty minute break, all

14 right. Come back at 20 after the hour. Thank you,

15 everyone for putting up with this because I had no

16 idea how to go with this letter. We are in recess for

17 20 minutes.

18 (Whereupon, the above-entitled matter went

19 off the record at 4:00 p.m. and resumed at 4:21 p.m.)

20 CHAIR BLEY: We are back in session. I

21 think so. Derek, you're here, right?

22 MR. WIDMAYER: I am here.

23 CHAIR BLEY: Okay. Thank you. I think

24 now we go to Joy.

25 MEMBER REMPE: Okay. Just out of

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1 curiosity, did you forget Vicki, or are you planning  
2 to put her on the second round with Charlie?

3 CHAIR BLEY: Her first round. But she's  
4 at the bottom of my alphabetical list.

5 MEMBER REMPE: Okay. I was just curious,  
6 you know. Okay. And you have hit most of my main  
7 points.

8 Though one point I guess I'd like some  
9 discussion on is a bit more on the micro-reactors.  
10 During our meeting last week, the staff did  
11 acknowledge that they're going to consider transport  
12 to the site and the issues associated with fueling.

13 And then they made the comment about,  
14 well, they've also got to consider, you know,  
15 transportation after the reactor is operated. But in  
16 some of the designs, and I don't know all of them, but  
17 it's after three years. And I'm thinking about the  
18 fact that we still don't have a repository in the U.S.

19 But Part 53, the images they've showed us,  
20 show that they're supposed to consider the whole fuel  
21 cycle. And there's the interaction between how big  
22 does the site need to be if there's no place to ship  
23 it back to.

24 And it's not clear to me that a vendor  
25 who's coming in for a DCA or a operating license has

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1 a place in mind where they're going to take it back  
2 yet. And I think that that's going to be an added  
3 complication.

4 And so this is in the gaps or the topics  
5 for inclusion in the future that I think some words  
6 should be added in our letter to discuss that, you  
7 know, again the staff is just starting to gather  
8 information. But we can see that this is something  
9 that the staff's not had to deal with, that if they  
10 don't have a place to ship it back to, they're going  
11 to need to have a parking lot for micro use, spent  
12 micro-reactors on site.

13 And do they need more guns and guards and  
14 emergency planning if you start having a whole field  
15 of micro-reactors, if they only have three years or  
16 less lifetimes?

17 So, anyway, what do other people think  
18 about this? Am I out of line here?

19 MEMBER HALNON: Well, even today's  
20 reactors require a spent fuel management plan. It  
21 doesn't necessarily dictate any one approach. But it  
22 certainly says tell us how you're going to protect and  
23 store and establish a long-term storage for your spent  
24 fuel.

25 So certainly something like that, if it's

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1 not in this, it would be lacking if we didn't require  
2 some sort of spent fuel management plan  
3 notwithstanding the decommissioning section. I don't  
4 think --

5 MEMBER REMPE: So years ago when they  
6 first started doing nuclear, people thought they were  
7 going to have reprocessing. They thought they might  
8 have a repository. And then that didn't happen. They  
9 had to put a bunch of ISFSIs up.

10 So the spent fuel management plan when  
11 they first started up, did they have what the current  
12 situation is, Greg? I mean, the pools are getting  
13 full. They've had to build ISFSIs.

14 I just am kind of thinking this is  
15 something that -- and at least you can take the fuel  
16 out and put it in spent fuel pooler or put it in  
17 ISFSI. The site won't have a place to open up these  
18 reactor vessels containing fuels if it's a micro-  
19 reactor.

20 MEMBER HALNON: Yeah, I think the  
21 management plans were an add-on after the fact that  
22 the DOE wasn't taking the fuel.

23 But the bottom line is is that there needs  
24 to be some thought going into what you're mentioning.  
25 And that is, are you going to have byproducts and

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1 spent fuel and other things that can't be shipped  
2 right now? And until we get some firm commitment,  
3 there needs to be some method of storage and  
4 protecting it.

5 MEMBER REMPE: Yeah. Okay.

6 MEMBER PETTI: Joy, there's a little bit  
7 of an inconsistency though. I mean, if they're mobile  
8 and they've reached the end of their life after three  
9 years, at least as I understand it, they would go back  
10 to some central facility.

11 MEMBER REMPE: But there's no central  
12 facility. We don't have a repository. And are they  
13 going to --

14 (Simultaneous speaking.)

15 MEMBER REMPE: And so they'll put some  
16 fiction in there saying we're going to have it. But  
17 then it doesn't happen. DOE pulls the funding or, you  
18 know, whoever has paid for this thing.

19 And so they may need to have a bigger site  
20 to accommodate this. And yet they want to put it in  
21 downtown Detroit or something, right, with a small --  
22 they don't need emergency planning. They don't need  
23 a big site.

24 MEMBER PETTI: The only mobile systems  
25 that I've heard about are really DoD.

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1                   MEMBER REMPE: But there's just one that's  
2 going to be put out at the INL, right? They submitted  
3 an application. Or maybe INL could handle it, but it  
4 doesn't --

5                   MEMBER PETTI: I don't know which one  
6 you're talking about for sure. But there's two  
7 different ones in the DoD. One is mobile, and one is  
8 non-mobile.

9                   MEMBER REMPE: I can go to the  
10 Westinghouse site and see the Avenchi site or some  
11 nice cartoons. I think I can do that also with the  
12 Oklo site.

13                   MR. WIDMAYER: So staff told us last week  
14 that they are not considering mobile reactors in Part  
15 53.

16                   MEMBER REMPE: Oh, they did say they would  
17 consider transport to and from the site. They're not  
18 talking about something that's a mobile reactor that  
19 moves around like the Army's going to fly them in the  
20 sky to someplace. But that's not our problem.

21                   What I'm talking about are the ones that  
22 might come in to a -- well, right now they've  
23 submitted something for the INL site. And then  
24 there's -- I don't know where Westinghouse plans to  
25 put their thing.

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1           But, again, if they're going to try and do  
2 something near a city or up in Alaska, in the North  
3 Warning System or whatever, but that's military  
4 probably more.

5           But I just am, if there's -- they did say  
6 they talked to DOE last week, and DOE said you guys  
7 need to think about it. We want to include it in the  
8 rule. And so it's just a complication I think that  
9 needs to be considered.

10           CHAIR BLEY: Derek, where are -- right  
11 after number 25 on the right-hand side, type in what  
12 reports will there be for transportation and onsite  
13 storage for micro-reactors? I think we'll include it  
14 as one of the questions, Joy, but not --

15           MEMBER REMPE: Again, I think the staff is  
16 just starting to think about it. But it's a different  
17 situation where people can promise things in their  
18 application that may not come true.

19           CHAIR BLEY: We already promised a  
20 repository and they got sued. I don't know how all  
21 that suit has turned out. Are they still in the  
22 courts?

23           MEMBER KIRCHNER: No, the suits are  
24 resolved in favor of the utilities. The government is  
25 paying for the storage of fuel on site or on sites.

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1 CHAIR BLEY: Next in line. I don't think  
2 Pete's joined us. Is Pete here? I don't see him.  
3 Matt Sunseri, your first turn.

4 MEMBER SUNSERI: Thanks, Dennis. Most of  
5 the items that I have in mind have already been  
6 covered. And they center around item number 7 and all  
7 the tentacles from number 7 that have, and connected  
8 there. So I feel good about where it's going.

9 CHAIR BLEY: Okay. Thank you very much.  
10 Now, Vicki Bier.

11 MEMBER BIER: I think I have no additional  
12 comments other than the one I raised earlier. So I'm  
13 good.

14 CHAIR BLEY: Did I write down the one you  
15 raised earlier? I don't remember.

16 MEMBER BIER: It was kind of a follow-on  
17 of something from Vesna about do we really want to  
18 require PRA and maybe we need more discussion.

19 CHAIR BLEY: Oh, okay. We've got that.  
20 Okay. Good.

21 MEMBER BIER: Yeah.

22 CHAIR BLEY: Okay. Second round. Ron  
23 Ballinger, anything else?

24 MEMBER KIRCHNER: I think you need to go  
25 to Charlie.

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1 CHAIR BLEY: Oh, I forgot you, Charlie.  
2 You're right. Charlie. Back with the dog.

3 MEMBER BROWN: I'm here. I'm here. I  
4 forgot to unmute my phone.

5 CHAIR BLEY: It's been a while.

6 MEMBER BROWN: I guess I just wanted aside  
7 from, to focus on two items but expand it a little  
8 bit. And one was we've (audio interference).

9 CHAIR BLEY: Mike, can you mute your  
10 phone? Go ahead, Charlie.

11 MEMBER BROWN: Oh, okay. One, this  
12 springboards off of number 7 I guess only to a greater  
13 extent and I guess number 5. But I'm not limiting  
14 myself to GDCs 1 through 5. I went through all of  
15 them again.

16 And we have not excluded advanced light  
17 water reactors anywhere in here. And my genuine  
18 opinion is Appendix A ought to be incorporated for  
19 Part 53. And there might be some places where we  
20 could spiff it up a little bit.

21 There's a lot of them. I bet there's 10  
22 or 12 of them, 13 of them related to instrumentation  
23 and control type stuff. And they're fairly specific.

24 We could even, where they quote and say  
25 you got to follow the IEEE Standard 603, but you could

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1 always soften that and provide flexibility by  
2 including in the rule that, as amplified in some  
3 particular Reg Guides, you know, provided by NRC. You  
4 don't have to give the Reg Guides.

5 But it gives the staff flexibility to make  
6 some flexible choices and decisions based on the  
7 design of the plant and what may be necessary.

8 The second item would be on 10 CFR  
9 50.55(a).

10 CHAIR BLEY: Wait a minute. You've got  
11 your one item there. Up on the third row, Derek, on  
12 the right side after referral, QA and GDC, put another  
13 bullet. All of Appendix A should be included in the  
14 rule. That's what you're saying, right?

15 MEMBER BROWN: Yeah, yeah. And I'm not  
16 saying they can't be, have some innovations made to  
17 them. But they, fundamentally they apply. For the  
18 most part, they're very general in many circumstances.

19 I would make suggestions when we wrote the  
20 rule that we would provide some flexibility for the  
21 staff in Reg Guides. But I don't want to depend on  
22 Reg Guides.

23 I'm very sensitive to -- and 10 CFR  
24 50.55(a) is codes and standards. And that's where you  
25 actually establish the -- oops, somebody is gurgling

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1 again or flushing a toilet. Can you hear me okay,  
2 Dennis?

3 MEMBER REMPE: Could we please ask the  
4 people on the public line to mute themselves, please?

5 CHAIR BLEY: Two other people. Vicki,  
6 you're still open, too.

7 MEMBER BIER: Oh, sorry.

8 CHAIR BLEY: That's much better. I forget  
9 who was talking. Go ahead.

10 MEMBER BROWN: That was me. I forgot  
11 where I was now. I covered --

12 CHAIR BLEY: -- there could be some  
13 flexibility, but you want them all there. I don't  
14 know --

15 MEMBER BROWN: Yeah.

16 CHAIR BLEY: -- what that means but --

17 MEMBER BROWN: No, well, what I'm saying  
18 is you go take -- for instance, in 10 CFR 50.55(a)  
19 where it specifies your standard is IEEE 603.1991, you  
20 can say, you can give the staff the flexibility as  
21 implemented and expanded by, you know, a couple Reg  
22 Guides, you know, like, or the DCPs converted to Reg  
23 Guides and/or the design review guides from, you know,  
24 from the NUREG 800 as modified, most likely the latest  
25 one.

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1           But, I mean, there's ways to take away  
2           some of the rigidity and give the staff some  
3           flexibility when we go to Part 53. That's the first  
4           item.

5           The second item was to incorporate 10 CFR  
6           50.55(a).

7           CHAIR BLEY: Charlie --

8           MEMBER BROWN: Yeah.

9           CHAIR BLEY: -- finish one item.

10          MEMBER BROWN: All right. I'm finished  
11          with the GDC. You wrote it down.

12          CHAIR BLEY: That's your --

13          MEMBER PETTI: Can I ask a question?

14          CHAIR BLEY: Yeah.

15          (Simultaneous speaking.)

16          MEMBER BROWN: Hold it. Where am I? Tell  
17          me, Dennis.

18          CHAIR BLEY: You're quiet, Charlie.  
19          Derek, right where you are, put a comma and say with  
20          some flexibility to move some criteria to guidance.

21          MEMBER BROWN: I would change that  
22          slightly, is to allow staff flexibility --

23          CHAIR BLEY: Hold on. Stop. Leave it the  
24          way it was, Derek. We're not writing the letter now,  
25          Charlie.

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1 MEMBER BROWN: Okay. All right.

2 CHAIR BLEY: Some flexibility to move some  
3 criteria to guidance. Charlie, I wanted to ask you --

4 MEMBER BROWN: Yeah.

5 CHAIR BLEY: -- if you followed Bill  
6 Reckley's discussion at our last meeting where he said  
7 rather than having the GDCs, they were proposing a  
8 process. And he gave a long description of that. And  
9 we don't have the transcript yet --

10 MEMBER BROWN: I read it.

11 CHAIR BLEY: -- which -- you can't have  
12 read it because we don't have the transcript.

13 MEMBER BROWN: I know. He said some  
14 similar -- we asked these questions in an earlier  
15 meeting where he provided a smaller dissertation.

16 CHAIR BLEY: Yeah, but the idea was they  
17 would have a requirement in the rule to follow a  
18 process that leads you to something like the GDCs or  
19 ARDCs and would specify the kinds of things you have  
20 to address. And that's not comfortable for you.

21 MEMBER BROWN: No. My worry about that is  
22 as soon as you do that you're going to end up with a  
23 bunch of disagreements and back and forths, which  
24 could lead to not much progress. I just don't think  
25 that's the right way to do it.

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1 CHAIR BLEY: I'm going to get to Dave in  
2 a minute. But put a sub-bullet here, Derek. And I'm  
3 going to just say consider staff's proposal or a  
4 process to drive an applicant to the selection of  
5 principal design criteria.

6 And I'm going to say I kind of think that  
7 idea is a good one. But I haven't seen the process  
8 laid out in detail yet. So (audio interference) not  
9 criteria, there's -- yeah, yeah, I'm sorry, principal  
10 design criteria.

11 MEMBER BROWN: Tell me when I can go  
12 again.

13 CHAIR BLEY: Not quite yet --

14 MEMBER BROWN: Okay.

15 CHAIR BLEY: -- because, Dave, I think it  
16 was Dave had a comment on this.

17 MEMBER PETTI: I was confused, because I  
18 don't, as I understand it, I do not believe that the  
19 GDCs in Appendix A, in fact at all, most are not  
20 applicable. Maybe a third of them are applicable to  
21 advanced reactors.

22 That's what the advanced reactor ARDCs  
23 were developed for, because they went through each one  
24 of them and decided if they made sense and if they  
25 didn't make sense how they needed to be modified. So

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1 the ARDCs are a better set.

2 If you're saying I want to put criteria  
3 into the document, which I'm not necessarily  
4 proposing, those are the ones that at least have gone  
5 through some sort of a filter for each technology and  
6 developing a set that makes sense.

7 MEMBER BROWN: Are the ARDCs focused only  
8 on non-light water reactors?

9 MEMBER PETTI: Correct.

10 MEMBER BROWN: Well, this thing does not  
11 say non-light water reactors. It says advanced  
12 reactors --

13 MEMBER PETTI: No, I think --

14 MEMBER BROWN: -- period.

15 MEMBER PETTI: No, I believe somewhere in  
16 the, maybe it's in Part A, that this is non-light  
17 water. Is that true?

18 CHAIR BLEY: Well, but we've also argued  
19 it should apply to any.

20 MEMBER KIRCHNER: Yeah, I would submit  
21 that the ARDCs that are in the Reg Guide could  
22 reasonably apply to an advanced light water reactor as  
23 well as non-light water.

24 I think in many, many meetings with staff  
25 we've objected. Even, Charlie, in some of your

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1 positions on branch technical positions and such, we  
2 keep objecting to this non-LWR nomenclature. But I  
3 think the staff is following guidance from management.

4 But I would submit that the ARDCs, not the  
5 HTGR or sodium fast reactor versions, but I think it's  
6 Appendix A of the Reg Guide, are fairly generic and  
7 they are very consistent, Charlie, with the GDCs. And  
8 actually there are a few cases where they fix some.  
9 Notably GDC 27 is an improvement.

10 MEMBER BROWN: Well, I went through those  
11 back when we did it. And quite frankly, I don't  
12 remember all the details. I went back through Part 50  
13 this time. And I just want them in the rule. That's  
14 all. I don't want them in a Reg Guide --

15 CHAIR BLEY: Charlie?

16 MEMBER BROWN: -- in the rule.

17 CHAIR BLEY: We'll see who else kind of  
18 agrees with you on this. I don't, because I see there  
19 are, could be very bizarre designs coming in for which  
20 they don't apply and having a set, again, that you  
21 have to get exceptions from, if there's an  
22 alternative. And I think their proposal is an  
23 alternative and would help us out.

24 You know, and they're supposed to be  
25 covering of all things fusion in here as well. Some

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1 of that stuff would apply to them but not a whole lot.

2 So I'm kind of leaning against it. I'm  
3 thinking this is one that might have to be added  
4 comments. But I'm looking, before you go ahead,  
5 Charlie, I'm looking for other people to comment on  
6 this.

7 MEMBER BALLINGER: Yeah, this is Ron. I'm  
8 wondering whether or not there's some kind of a hybrid  
9 that could be done, because the first five or maybe a  
10 few more are very, they're very specific and very high  
11 level. And then the rest of them are much more  
12 specific.

13 So you wonder whether or not the very  
14 clearly generic ones could be in the rule, and then  
15 the rest of them implied or however you want to word  
16 it --

17 CHAIR BLEY: Well, that was the suggestion  
18 Walt made, which is the first bullet in this section.

19 MEMBER BALLINGER: And I think he's got  
20 it.

21 CHAIR BLEY: Nobody's objecting --

22 MEMBER KIRCHNER: When I said 1 through 5,  
23 I actually, Jose mentioned this, too. I think you can  
24 extract some of the more generic categories that are  
25 covered that deal with reactivity control, deal with,

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1 you know, instead of containment with fission product,  
2 radionuclide barriers, et cetera.

3 MEMBER BROWN: Well, chapter, I mean,  
4 design criteria 13 INC is applicable to anybody. 17  
5 is electric power. That's applicable because you're  
6 going to generate power somehow. Number 19 is control  
7 room. Then 20, 21, 22, 23, 24, 25, 26, reactivity  
8 control, all the way up through 29 are all applicable  
9 to anything we build.

10 CHAIR BLEY: Charlie --

11 MEMBER BROWN: Yeah, that's my point that  
12 --

13 (Simultaneous speaking.)

14 CHAIR BLEY: -- from other people.

15 MEMBER BROWN: I'm just --

16 MR. CORRADINI: Dennis, this is Corradini.  
17 I think Dave made a good technical point that if  
18 whether they go inside the rule or in guidance, the  
19 ARDCs are the appropriate vehicle, not the current  
20 GDCs from Appendix A of 52.

21 MEMBER BROWN: If I could see the ones I  
22 am particularly interested in in the ARDCs, I don't  
23 care. But I'm really focused on them being in the  
24 rule. We're just eliminating standards and  
25 requirements from the rule so that you can argue about

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1       them for months or years. I think that's wrong.

2                   MEMBER PETTI: Just another point here,  
3       that when we talk about this topic and you look at the  
4       ARDCs in the LMP I think you have to remember that how  
5       defense-in-depth is implemented through the LMP  
6       approach is critical.

7                   I think a lot of the arguments that I hear  
8       will, if you apply defense-in-depth the way it's meant  
9       to in the LMP, you will not have, you know, some of  
10      these specific design approaches. The defense-in-  
11     depth approach in LMP will prevent it.

12                   You don't need the single failure  
13     criteria. If you'd apply the defense-in-depth  
14     approach of the LMP properly, you get to where you  
15     want to be --

16                   (Simultaneous speaking.)

17                   MEMBER MARCH-LEUBA: Dave, I so disagree  
18     with that.

19                   MEMBER PETTI: Okay. Well, I'll just tell  
20     you that, as I understand LMP, that gets you where you  
21     want to be. And what it does is it doesn't put excess  
22     safety in places you don't need it. It gives you  
23     balanced safety. You protect what you need to  
24     protect, and you don't protect what you don't need to  
25     protect.

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1                   MEMBER MARCH-LEUBA: Defense-in-depth has  
2 one of those such as having sufficient margin by  
3 calculations. It doesn't mean you have defense-in-  
4 depth. It says, hey, these are things that cannot  
5 possibly do anything wrong.

6                   MEMBER PETTI: That's not what the LMP  
7 approach says. Go back --

8                   MEMBER MARCH-LEUBA: That is what 10 CFR  
9 53 says.

10                   MEMBER PETTI: No, it doesn't. There's a  
11 whole defense-in-depth section of Part 53.

12                   MEMBER MARCH-LEUBA: Yeah, which says if  
13 one other ways to have defense-in-depth is to have  
14 sufficient margin that was studied by analysts.

15                   MEMBER BROWN: Well, on that basis, you  
16 don't need any protection systems.

17                   MEMBER MARCH-LEUBA: Absolutely. And you  
18 only need --

19                   (Simultaneous speaking.)

20                   MEMBER MARCH-LEUBA: -- one channel of the  
21 protection system. You don't need four --

22                   MEMBER BROWN: That's right.

23                   MEMBER MARCH-LEUBA: -- because --

24                   MEMBER PETTI: I'm not arguing what's in  
25 the rule. I'm arguing what's in LMP. Go back and

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1 look at how it is structured. That's the whole  
2 argument. This is the whole crucial argument around  
3 LMP, which you guys all approved before I got on the  
4 committee. I think we're forgetting about that.

5 MEMBER BROWN: I never interpreted it that  
6 way, Dave. I never --

7 MEMBER KIRCHNER: So I found, Dave, that  
8 the defense-in-depth in LMP was lacking. It was an  
9 afterthought, an add-on. You do a tabletop exercise.  
10 And you just work probability numbers. And you decide  
11 I'm okay. That's not defense-in-depth. Defense-in-  
12 depth --

13 (Simultaneous speaking.)

14 MEMBER PETTI: That is not what the LMP  
15 says. Dennis, please --

16 (Simultaneous speaking.)

17 MEMBER KIRCHNER: -- the way it plays out.

18 CHAIR BLEY: No, that's just not right,  
19 Walt. Go back and read it again. In fact, that's one  
20 place where they made a big step forward over the  
21 former GA stuff and the 1860 and the NGNP.

22 Anyway, this is one that has some  
23 controversy. But I'm not hearing anything like a  
24 consensus that we ought to have all of Appendix A in  
25 the rule.

1 MEMBER BROWN: Well, I'll default to the  
2 stuff that I'm interested in if you want me to.

3 CHAIR BLEY: So, Charlie, go to your next  
4 item.

5 MEMBER BROWN: The next item was the 10  
6 CFR 50.55(a), which is the codes and standards. And  
7 there ought to be something similar in this that lays  
8 out codes and standards that are, that you have  
9 requirements that people have to follow. And that's  
10 similar, the UC, Ed Lyman addressed that thought  
11 process also.

12 CHAIR BLEY: Derek, go to a new row on the  
13 right-hand side. And, Charlie, repeat what you said  
14 for Derek.

15 MEMBER BROWN: You ready, Derek? I'm  
16 looking. I can't -- oh, okay. I see the cursor now.  
17 All right.

18 Should incorporate sections similar to 10  
19 CFR 50.55(a) to define required codes and standards.  
20 Is that sufficient?

21 CHAIR BLEY: That's good enough, Charlie.  
22 And I guess I'd ask -- I got to go back and look at  
23 50.55(a). I don't remember it. Anybody have thoughts  
24 on this one?

25 MEMBER BALLINGER: This is Ron. My memory

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1 might fail me. But in the last presentation, didn't  
2 Bill specifically address this issue of codes and  
3 standards? And I thought he had had a pretty good  
4 discussion of that.

5 CHAIR BLEY: I thought we'd have the  
6 transcript by now, but we don't. And I don't remember  
7 well enough.

8 MEMBER BROWN: I remember the discussion.  
9 I don't remember exactly what Bill said.

10 But I did write down one of my items,  
11 which I didn't say, was on the consensus codes and  
12 standards. They were talking about consensus codes  
13 and standards. And we questioned what do you mean by  
14 consensus codes and standards.

15 And that was also part of Lyman's. I  
16 think he made comments relative to that also. So we  
17 need the transcript to get the actual words. And like  
18 you say, we haven't got it yet.

19 CHAIR BLEY: Yeah, but I don't remember  
20 for sure what's written down in Part 53. So --

21 MEMBER PETTI: I have it open. I can read  
22 it to you.

23 CHAIR BLEY: Read it.

24 MEMBER PETTI: Oh, crap, hold on. I  
25 closed it.

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1 (Laughter.)

2 MEMBER PETTI: I'll get it here. Oh, it's  
3 a PDF. Here it is. Hold on. I got to find it.

4 CHAIR BLEY: Dave, I don't think we need  
5 to do this now.

6 MEMBER PETTI: Okay.

7 (Simultaneous speaking.)

8 MEMBER PETTI: I mean, is the question  
9 that you want to put the exact, specific code and  
10 standards in the rule or that there should be  
11 something saying that you need to build this thing to  
12 relevant codes and standards?

13 MEMBER BROWN: No, the rules today say  
14 there -- they identify specific codes and standards in  
15 the rule. Yes, the answer to your question is yes.

16 MEMBER PETTI: The problem -- well, okay  
17 --

18 (Simultaneous speaking.)

19 MEMBER PETTI: -- what level you get to I  
20 guess.

21 MEMBER BROWN: Well, somewhere there ought  
22 to be standards and codes that people have to meet.  
23 If you throw them out, what have you got?

24 MEMBER PETTI: Okay. But let's take ASME,  
25 Section 3. One reactor will use Division 1. Some of

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1 the new reactors will use Division 5. I mean, this is  
2 the problem, you know, for some of the codes and  
3 standards, that there are going to be different ones  
4 for the different reactors because of the conditions  
5 they're exposed to.

6 MEMBER BROWN: And that can be called out  
7 to allow flexibility, again, as I suggested before  
8 when you're addressing something that's different.

9 (Simultaneous speaking.)

10 MEMBER BROWN: But you can at least pull  
11 out a standard for people to deal with.

12 CHAIR BLEY: I think that's what Dave was  
13 suggesting the current words do. They say you have to  
14 have them, but they'll have to come out in design  
15 specific guidance.

16 And we should all go back and look at  
17 what's there, look at 50.55. And then next week we  
18 can talk about it.

19 And, Derek, and I know they're here. But  
20 if you could send a note saying we'd like a reprise on  
21 codes and standards at the full committee meeting,  
22 just a short one, I think that would be good.

23 MR. WIDMAYER: Okay. Got it.

24 MEMBER BROWN: The Part 53 section is  
25 53.44.

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1 CHAIR BLEY: Okay. This was your second  
2 one.

3 MEMBER BROWN: Yeah, I won't beat to death  
4 on anything else. There are smaller potatoes --

5 (Simultaneous speaking.)

6 MEMBER BROWN: You've covered defense-in-  
7 depth already I think, haven't you, in one of the  
8 other comments?

9 CHAIR BLEY: I think so. You've had your  
10 two. You've had your two for the first round and the  
11 second.

12 Ron, you're up for your second round.  
13 Then we'll try to get through everybody to see if  
14 there's another issue we want to get up here. Ron  
15 Ballinger.

16 MEMBER BALLINGER: Sorry, sorry. I didn't  
17 have the, I didn't unmute myself.

18 I think it's all pretty much been stated.  
19 I think the, my issues related to guidance versus the  
20 rule are consistent with some of the discussion in  
21 number 7 and number 21 and, yeah, number 21. So I  
22 think I'm okay. I just -- yeah, thank you.

23 CHAIR BLEY: Okay.

24 MEMBER BALLINGER: With regard, by the  
25 way, to the codes and standards, I do remember the

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1 discussion, because we questioned them on that  
2 considerably, because some of these new reactor  
3 designs, the codes that might be used might be  
4 different than the ones that we're familiar with.

5 And the end result was that all of the  
6 codes and standards that were, that are used would  
7 ultimately have to be either on the NRC's sanction  
8 list already, or by the time a design cert was issued,  
9 the code and standards that might not have been would  
10 have been approved by the staff. That's what I  
11 remember as the discussion.

12 CHAIR BLEY: Yeah, one thing in this area,  
13 if you remember back when we did the Westinghouse  
14 1000, there were no existing standards for that  
15 modular structure design where you have those fuel  
16 frames and you pour concrete in them.

17 MEMBER BROWN: You mean the AP1000?

18 CHAIR BLEY: Yeah, I meant the AP1000.

19 MEMBER BROWN: Okay.

20 CHAIR BLEY: And, you know, the staff and  
21 we had to deal with that. And that actually led to  
22 some dissenting opinions on the staff side.

23 So once in a while you get to a place  
24 where there aren't any standards, and you have to  
25 figure a way through it. But --

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1 MEMBER BROWN: That's a different issue.

2 CHAIR BLEY: -- comments so far. So now  
3 we will go back to, Vesna, do you have another one?

4 MEMBER DIMITRIJEVIC: No, I'm good. I  
5 heard some question of the scope, because I had to  
6 pick up something. And I heard in the background that  
7 the transportation reactors are not within the scope  
8 of 53. Is that true?

9 CHAIR BLEY: No.

10 MEMBER DIMITRIJEVIC: It's not. Okay.

11 CHAIR BLEY: But they're going to deal  
12 with some aspects of transportation. We have a  
13 question on transportation for micro-reactors. But  
14 they are working on transportation issues.

15 MEMBER DIMITRIJEVIC: Yeah, I thought we  
16 put that question. I was here when that happened.  
17 But I only heard it through background of, that of the  
18 scope. So I was sort of, you know, wondering does  
19 this scope include every new design, I mean, you know.  
20 So otherwise I'm good.

21 CHAIR BLEY: If it's in the rule, then it  
22 applies to anybody who comes in unless they, you know,  
23 ask for an exception from the rule.

24 Where am I on my list? Greg.

25 MEMBER HALNON: I believe that we've

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1 picked up everything that I was concerned about.

2 I did want to just clarify one thing to  
3 see if I'm thinking the same on the pilot studies,  
4 number 25. I see that as the tabletop type for  
5 someone in the industry volunteering to exercise the  
6 rule through the design application process, and then  
7 followed by tabletop on the NRC acceptance process.  
8 Is that kind of what we're talking about there? Is  
9 that what's in people's mind?

10 CHAIR BLEY: Yeah, I thought we had it up  
11 here somewhere.

12 MEMBER HALNON: It is. It's there on  
13 number 25 on the right-hand column towards the bottom.  
14 But it was a pilot study. And I wanted to just  
15 clarify what pilot study meant.

16 CHAIR BLEY: Yeah. I hate using the word  
17 tabletop because I've come out of areas where you  
18 actually do a tabletop.

19 MEMBER HALNON: Yeah, that's fine. So I'm  
20 good. Everything else is deep and much deeper than  
21 I've gone with my review so far.

22 CHAIR BLEY: Okay. Let me mention I  
23 skipped myself on the second round. There's a couple  
24 that I think we kind of talked about, but we didn't  
25 actually do them by this number.

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1           Number 10 up there is safe stable shutdown  
2           endpoint should be required. I think we had pretty  
3           good consensus on that. And I think that goes  
4           probably with the second row on the right. Do people  
5           agree or disagree with that?

6           MEMBER REMPE: So, Dennis, that was the  
7           one I was puzzled why you included it, because the  
8           staff did include that in the draft text we saw last  
9           week.

10          CHAIR BLEY: I had it there because I  
11          remember we talked about it, and people had raised it  
12          as an issue. And they could change.

13          MEMBER REMPE: Okay. Well, if you're  
14          worried about the rule, change it. But I was -- we  
15          brought it up in the meeting. And I was real happy to  
16          see that they included that in the text that they  
17          revised. And so they listened to us. And so I hope  
18          that your write-up --

19          CHAIR BLEY: Well, I can look.

20          MEMBER REMPE: -- reflects that.

21          CHAIR BLEY: Since you're so conversant in  
22          it, give me the --

23          MEMBER BROWN: Yeah, I don't remember that  
24          either, Joy.

25          MEMBER REMPE: I can tell you the slides.

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1 But it's also -- hold on. Let's see. I'm looking at  
2 a markup here.

3 It's under the design requirements where  
4 they talk about a safe stable in-state. And it says  
5 here, addition to paragraph F to address event  
6 sequences from initiation to a safe stable in-state  
7 for DBAs was in response to comments from ACRS  
8 members.

9 CHAIR BLEY: It doesn't say --

10 MEMBER BROWN: It doesn't say --

11 (Simultaneous speaking.)

12 MEMBER REMPE: I'm sorry. I couldn't hear  
13 what you both were saying. It's 53.450.

14 MEMBER BROWN: It doesn't say shutdown.

15 MEMBER REMPE: A safe stable in-state.

16 MEMBER BROWN: That's not shutdown.

17 MEMBER REMPE: We had some problems with  
18 another DCA where they didn't go to a safe stable in-  
19 state.

20 MEMBER BROWN: Well, they can --

21 (Simultaneous speaking.)

22 CHAIR BLEY: -- if that was an issue for  
23 a lot of people who wanted it to say shutdown.

24 MEMBER REMPE: Okay. If you want to have  
25 shutdown, too, that's fine. But they did add, keep

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1 going -- I mean, it was what Jose brought up where  
2 they could --

3 (Simultaneous speaking.)

4 MEMBER MARCH-LEUBA: Since you used my  
5 name in vain, I brought up the, by the concept that  
6 letting a reactor go to 2,000 Kelvin to shut down.  
7 It's not a safe stable condition. It was one of those  
8 metastable conditions that are slowly degrading into  
9 going back to power. And probably that's why they  
10 changed that language. They listened to me. I'm  
11 surprised.

12 CHAIR BLEY: I think you always say that,  
13 and they always do. I think safe stable shutdown is  
14 something that the majority of people agree with. If  
15 there is anybody who doesn't agree with that, speak up  
16 now.

17 MEMBER PETTI: Well, I think --

18 MEMBER MARCH-LEUBA: I agree with that.  
19 I think it's more than I'm asking.

20 MEMBER PETTI: I think it depends on what  
21 you mean, what do the words --

22 MEMBER MARCH-LEUBA: The key is stable  
23 versus metastable. If you're relying to shut down the  
24 reactor, on keeping the reactor super-hot, that's not  
25 a safe stable condition.

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1 MEMBER PETTI: No, that's not what --

2 MEMBER MARCH-LEUBA: It is a slowly  
3 degrading.

4 MEMBER PETTI: That's not what they're  
5 talking about. There are, in solid moderator systems,  
6 there is inherent feedback that will always turn the  
7 reactor around in the event of reactivity increase  
8 that will bring it down.

9 MEMBER MARCH-LEUBA: As long -- no, it  
10 won't bring it down. It will keep it hot.

11 MEMBER PETTI: Yes, it will. No, it  
12 won't. There have been --

13 (Simultaneous speaking.)

14 MEMBER MARCH-LEUBA: Can you refuel the  
15 reactor without inserting control rods?

16 MEMBER PETTI: Without inserting control  
17 rods. The temperature --

18 MEMBER MARCH-LEUBA: You can refuel.

19 (Simultaneous speaking.)

20 MEMBER MARCH-LEUBA: You can refuel the  
21 reactor.

22 MEMBER PETTI: No, no, listen. If there's  
23 a reactivity upset, the temperature coefficient turns  
24 it around. Okay. Eventually, yes, you insert your  
25 rods. But you don't have to insert the rods in three

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1 milliseconds. Okay --

2 MEMBER KIRCHNER: That's not what safe,  
3 the shutdown means, Dave. It means to actually take  
4 the reactor subcritical and keep it subcritical.

5 MEMBER PETTI: It goes subcritical. And  
6 then you have to wait until the --

7 MEMBER KIRCHNER: No, I'm not talking  
8 about transients. I'm just talking about normal  
9 operation.

10 LWRs have the same feedback  
11 characteristics as a HTGR. It's just stronger than  
12 HTGR. But that's a different set of considerations.

13 What the, what 10 CFR 50 definitions and  
14 52 are talking about is shutting down the reactivity  
15 of the reactor. And that requires in most designs  
16 shutdown rods or the equivalent.

17 It could be a drum. It could be any  
18 positive means of inserting negative reactivity or  
19 poison. But it's the idea that you can actually shut  
20 it down.

21 CHAIR BLEY: Okay. That was an  
22 interesting event. The other one I wanted to ask  
23 about -- no, I'm going to go ahead.

24 MEMBER REMPE: Dennis, to follow up on  
25 your addition, when I'm looking at this paragraph E

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1 and F for the safe stable in-state they talk about  
2 what's needed to go there. And they talk about the  
3 human, a combination of equipment, as well as human  
4 performance.

5 And there was an item on your list about,  
6 it was more of a question about how do you know about  
7 the human performance when you don't have procedures  
8 at a DCA. Is this a good place to add that to, to  
9 your point that you're raising here?

10 CHAIR BLEY: I don't think it belongs on  
11 this point. But I think it is one to keep in the  
12 questions if we want it.

13 MEMBER REMPE: Okay. I know if you --  
14 again, I guess you've got the micro-reactor in this  
15 list. And so are you planning to cut some questions  
16 later then or after we go through the second round?

17 CHAIR BLEY: I'm planning to stay with the  
18 list I passed out.

19 PARTICIPANT: Joy, that might be better  
20 addressed in the operations section when we get to  
21 that.

22 MEMBER REMPE: Okay.

23 CHAIR BLEY: We can have a question for  
24 things in the future.

25 MEMBER KIRCHNER: You know, there's

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1 another -- I thought, Joy, where you were going to go  
2 originally with the micro-reactors was should there be  
3 a carve out, pardon the use of the words, in 10 CFR 53  
4 that says at, I'll make up a number, 10 megawatts or  
5 less go follow the rules for a research reactor or  
6 test reactor.

7 MEMBER REMPE: Well, they told us at the  
8 last meeting they hadn't seen anything that was low  
9 enough that they felt comfortable doing that. So  
10 that's why I did not bring that question up.

11 But again, it's not just operations on the  
12 micro-reactors. It's been -- you cite it. You might  
13 not, you need more land. And so it needs to be  
14 thought about holistically.

15 CHAIR BLEY: Well, we already have that  
16 one. So Joy just brought up the one that on my list  
17 was labeled 23. And that came from Joy's list. And  
18 we can keep that as a question if we want, or we can  
19 wait and just discuss it later.

20 Any feelings? It sounds like Joy would  
21 like it to be flagged early. Oh, can you hear the  
22 thunder?

23 MEMBER REMPE: I'm fine wherever it is.  
24 And again, I'm not sure with what this table issue had  
25 there. So you're going to have a separate list of

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1 questions later?

2 CHAIR BLEY: No, I'm not. Everything I  
3 proposed is on this list. And I got it from all of  
4 you.

5 MEMBER REMPE: So where are the list of  
6 questions going to be, just you're going to go back to  
7 your table that was the agenda and simplified list of  
8 issues for Rev 1?

9 CHAIR BLEY: If you go back to what I  
10 passed out when we started, I proposed three things be  
11 in the letter.

12 One is issues that are directly related to  
13 the overall structure, Subparts B and C, and that we  
14 have conclusions and recommendations dealing with  
15 them. And that's what we've been talking about.

16 Occasionally, things have come up that  
17 could just be questions that we just include in a list  
18 near the end of the letter saying we just want to make  
19 you aware that members have questions in the following  
20 areas that will arise in future meetings.

21 And then I had a third one. If we found  
22 anything that's, for later that's not part of B or C,  
23 that we think could be a show stopper, we ought to  
24 flag right now. And nobody brought up one of those  
25 yet. And we might find one later. But we don't have

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1 any yet.

2 MEMBER REMPE: So, basically, all of these  
3 items on the questions 15 through 24 are going to be  
4 on, and I don't need to bring them up. Is what you're  
5 saying?

6 CHAIR BLEY: Absolutely not. We'll bring  
7 up the ones that we've talked about. And the ones  
8 that nobody wants to talk about, we'll say nobody's  
9 interested enough.

10 MEMBER REMPE: So wherever you've put in  
11 the item that you mentioned, I'd like to suggest, not  
12 under the micro-reactors but -- where is the most  
13 recent one written that you brought up?

14 CHAIR BLEY: Item 23.

15 MEMBER REMPE: Yeah, I'd like to see item  
16 23 added to it is what I'm trying to say.

17 CHAIR BLEY: Thank you. We'll do it.

18 I think, Walt, it's your turn for the  
19 second round. Do you have anything new or --

20 MEMBER KIRCHNER: Well, I --

21 CHAIR BLEY: -- item from the list you  
22 want to bring up?

23 MEMBER KIRCHNER: Working with your list,  
24 Dennis, I would just like to say that I can't see the  
25 header on the table here, but I think the right-hand

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1 column -- oh, the things we like.

2 I liked the way the -- and perhaps I  
3 misspoke about how defense-in-depth is treated in the  
4 LMP. I'll certainly go back and look at it. But I  
5 got the perception it was more of an afterthought, a  
6 bookend. But that's probably a wrong impression on my  
7 part.

8 But what I do like is that they put the  
9 DID concept up at the top, up in the front I think in  
10 Part B. Whereas, I think in the earlier drafts, it  
11 was invoked through the use of the QHOs and the tier  
12 2 safety criterias.

13 But I'm a firm believer you start with, by  
14 building defense-in-depth by design. And there's  
15 quite a, there's some useful thinking, if you will, in  
16 the advanced reactor policy statement that kind of  
17 tips the balance towards -- and it involves defense-  
18 in-depth.

19 And that is the emphasis on prevention  
20 rather than mitigation and doing it either through  
21 inherent or passive safety features and/or the whole  
22 idea of reliability and redundancy, diversity, and  
23 independence as a means to achieve defense-in-depth.  
24 And that, those concepts are embedded in the advanced  
25 reactor policy.

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1           And I think bringing that whole concept up  
2 to the front in defense-in-depth I like. Whether you  
3 want to include that in the letter or not I don't  
4 know.

5           But certainly the more recent draft by the  
6 staff, Bill and his team, I thought was an improvement  
7 in how they were treating it. Notwithstanding, it's  
8 still, as Greg pointed out earlier, it's one of those  
9 things that can be very subjective.

10           CHAIR BLEY: You know, the paper someone  
11 mentioned at the last meeting that was done some years  
12 ago by ACRS on, it was really a paper on defense-in-  
13 depth. And it was a way of saying people have used  
14 defense-in-depth to just, I just want to add one more  
15 thing. We need it because of defense-in-depth with no  
16 end to that.

17           And the approach laid out in those letters  
18 and the approach laid out in the LMP are kind of  
19 defining how you find an end date to that and what  
20 it's really for.

21           So I'll include something like that in our  
22 discussion of the up-front stuff, Walt.

23           MEMBER KIRCHNER: Thank you. Yeah, I  
24 firmly believe PRA is a great tool in sorting out when  
25 enough is enough.

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1           But for some concepts, especially the less  
2 mature ones, where the PRA isn't going to be as robust  
3 as for the more developed concepts, a similar thought  
4 process I think should be invoked. And that's why I  
5 mentioned the IAEA safety guide earlier.

6           CHAIR BLEY: Okay. Thank you. Staff has  
7 been following those forever. Jose, back to you.

8           MEMBER MARCH-LEUBA: I just wanted to  
9 second Walt's comment on defense-in-depth. I really  
10 like the fact that they actually put it in there. I  
11 dislike the fact that they put so many such as and  
12 that it's probably not going to be followed up. But,  
13 yeah, defense-in-depth is important.

14           And I already wrote the single failure  
15 criteria paragraph. I'm ready to send it to you,  
16 Dennis.

17           CHAIR BLEY: Okay. You don't want to be  
18 here till 10:00. I don't much care. It's only 8:00  
19 for me.

20           MEMBER MARCH-LEUBA: I definitely not want  
21 to be here until 10:00.

22           (Laughter.)

23           CHAIR BLEY: Dave, do you have anything  
24 else?

25           MEMBER PETTI: I just I guess wanted to

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1 again go back to the staff did reword the radiation  
2 protection to just invoke Part 20 and the ALARA there,  
3 whether we want to say something to support that  
4 because there was a lot of industry concern about it.  
5 And I actually thought they handled it well.

6 CHAIR BLEY: I was going to include that  
7 in that discussion we had up in the first item on the  
8 left, Greg's concerns about subjective language --

9 MEMBER PETTI: Oh, okay.

10 CHAIR BLEY: -- bring up that ALARA is  
11 only in here to, the fact that it is important and  
12 refers it back to Part 20.

13 MEMBER PETTI: I mean, my big concern  
14 honestly is that the way one thinks about ALARA for  
15 the advanced systems could be quite different, because  
16 most of the risk could be in worker safety, much less  
17 in public safety. And so how you look at that could  
18 be different.

19 You know, I mean, we're allowed, workers  
20 are allowed to take extra dose if it's seen as, you  
21 know, lifesaving to the public. Well, if there's no  
22 threat to the public, then, you know, they shouldn't  
23 be accepting, be able to accept the extra dose  
24 perhaps, you know.

25 All those sorts of discussions I think you

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1 could see come to the fore with some of these more  
2 advanced concepts.

3 CHAIR BLEY: I made a note to include  
4 something like that or some sentence or so. But if  
5 you have anything you dream up that are good words,  
6 send them along. I appreciate it.

7 MEMBER PETTI: Okay. Other than that, I  
8 don't have any.

9 CHAIR BLEY: Okay.

10 MEMBER PETTI: I also like the defense-in-  
11 depth section in the rule, the latest version we saw.

12 CHAIR BLEY: Okay. That seems pretty  
13 strong so far.

14 Joy, I'm back to you. And don't feel  
15 limited to one this time. Put out everything you want  
16 to get out there.

17 MEMBER REMPE: Well, first, I guess my  
18 last statements were -- I'm guessing because I can't  
19 see the updated screen. So could I ask Derek to  
20 reshare his screen, because is there something on  
21 there about the safe stable in-state that's shut down  
22 or whatever --

23 CHAIR BLEY: No.

24 MEMBER REMPE: -- because I don't see  
25 anything on there?

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1 CHAIR BLEY: No, there's nothing on there.  
2 And I've got notes about that.

3 MEMBER REMPE: Okay. So, and then you'll  
4 have the question about the -- because that's why I  
5 was confused. I was like, well, I don't see that one  
6 added. So I don't see anything on there.

7 Then the only other thing that I had that  
8 I don't see anything on that perhaps it's in your  
9 mind, but I would mention in the letter that we are  
10 going to be hearing from the staff about the guidance  
11 that's planned and that the coordination with 50 and  
12 52 and that, and just make them aware of, you know,  
13 future activities, because there's been a lot of  
14 questions about what guidance will be available, about  
15 the PRA that's graded, as well as source term and  
16 other things.

17 CHAIR BLEY: Okay. I'm not going to write  
18 that one down.

19 You had another comment, they didn't  
20 listen to me kind of comment. We were told that there  
21 would be language noting that additional requirements  
22 must be met. Submitted design does not have all the  
23 safety attributes met using passive or inherent safety  
24 features. Is that true? Do you want that question in  
25 our letter?

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1 MEMBER REMPE: Yeah, and the follow-on  
2 thing about what is sufficient and what additional  
3 requirements if it's not sufficiently relying on  
4 passive or inherent safety. You're right. I forgot  
5 about that one.

6 CHAIR BLEY: I don't remember them  
7 promising this.

8 MEMBER REMPE: It was in the discussion  
9 last week. I asked Bill --

10 CHAIR BLEY: Of the --

11 MEMBER REMPE: -- you know, it seems like  
12 you're assuming that they're relying on some amount of  
13 increased reliance on inherent and passive safety.  
14 And, I mean, that's why you're giving them this  
15 flexibility. And how do you decide if they've  
16 sufficiently increased their reliance?

17 And I thought his response back was, well,  
18 if they don't, we'll have to put in additional  
19 requirements.

20 So it's not like that you just meet the  
21 dose limit with a certain frequency. You've got to do  
22 it with more inherent and passive safety. And I  
23 thought that was kind of fuzzy.

24 CHAIR BLEY: It was so fuzzy I missed it.  
25 Hey, Derek, do we have any idea when we might get the

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1 transcript?

2 MR. WIDMAYER: I'd have to defer. At this  
3 point, we asked them to get it to us within a week.  
4 And so that would be tomorrow.

5 CHAIR BLEY: Okay. Well, they're usually  
6 pretty good at meeting those commitments. So, as soon  
7 as we get this transcript, Derek, we'll make sure  
8 everybody can see it. And I will look for that thing  
9 we just talked about. So I got a note to check the  
10 transcript.

11 So I thought you had one other one that  
12 you didn't talk about.

13 MEMBER REMPE: Well, there was the item  
14 that Vicki brought up about multiple licensees at the  
15 same location.

16 CHAIR BLEY: Yeah, and we sort of talked  
17 about that. Let me see if I -- maybe it was on the  
18 first page.

19 MEMBER REMPE: And there is the thing  
20 about the power level. But I guess I was -- again,  
21 I'm trying to -- I had a lot of comments. But I  
22 figured that a lot of those will get addressed later.

23 CHAIR BLEY: Yeah, I think we can wait for  
24 most of those. But that one on power they're going to  
25 look at -- oh, yeah, Mike Corradini had one. It's

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1 number 19.

2 How will external and internal hazards be  
3 applied in the rule, on a per module basis, a per  
4 facility basis, or a per site basis? And what if  
5 there are existing facilities on the site? What if  
6 there are multiple licensees? I'll include that as  
7 one of the questions, something like that.

8 So I had one more that nobody has  
9 commented on. Oh, Jose, you had a comment somewhere.  
10 It was in one of the meetings that SAFDL requirements  
11 should be added to the LMP in Part 53. Do you have  
12 anything to say about that?

13 MEMBER MARCH-LEUBA: I thought I only had  
14 one issue to add. Yes, definitely, this has to do  
15 with the barriers.

16 If an applicant takes credit for a barrier  
17 to, under some circumstances prevent release of  
18 radioactivity to the public, they should maintain the  
19 integrity of those barriers for normal operating  
20 conditions, AOOs, and DBAs. And that is something  
21 that is Part 50 and 52. And I cannot see how this can  
22 be removed from 53.

23 CHAIR BLEY: And there wasn't anything in  
24 C about that. I don't remember.

25 MEMBER MARCH-LEUBA: Say again.

1 CHAIR BLEY: They didn't have any words  
2 about that in Subpart Charlie?

3 MEMBER MARCH-LEUBA: No, no, because all  
4 they say is as long as I don't kill anybody, which are  
5 just shorthand for 25 rem out of the burning, I can  
6 break any barriers I want.

7 If you take credit for a barrier for  
8 anything whatsoever, you should maintain it for normal  
9 operation, AOs, and DBAs. So, if you want to breach  
10 your vessel and containment and release contaminant or  
11 your vessel atmosphere into the air, then you should  
12 not take credit of the proper vessel and containment,  
13 so your other calculations, because you're planning to  
14 breach it.

15 CHAIR BLEY: Okay.

16 MEMBER MARCH-LEUBA: I mean, just saying.

17 MEMBER PETTI: So SAFDLs make no sense --  
18 (Simultaneous speaking.)

19 CHAIR BLEY: Go ahead, Dave.

20 MEMBER PETTI: SAFDLs make no sense for a  
21 molten salt reactor. They do not make sense for an  
22 FHR. The staff has accepted they make no sense for  
23 any CGR. And they are substituting a SAFDLx. That's  
24 what's in the advanced reactor design criteria. So  
25 it's only sodium systems that would have SAFDLs.

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1 CHAIR BLEY: The way Jose phrased it, if  
2 you take credit for a barrier, you have to maintain  
3 that barrier for AOOs and DBAs. You don't have a  
4 problem with that, do you?

5 MEMBER PETTI: No, no. It's the --

6 (Simultaneous speaking.)

7 MEMBER MARCH-LEUBA: And that's the way it  
8 should be phrased. I mean, if you don't need a  
9 barrier because your molten salt takes care of all  
10 your isotopes, fine, you don't need a barrier. But  
11 don't take credit for it.

12 CHAIR BLEY: Okay. I'm tired. I don't  
13 know how I'm going to write this letter. But I'll get  
14 a draft.

15 If anybody else wants to bring up issues  
16 or some other discussion, I'd appreciate it. And  
17 those of you who so kindly volunteered to send me some  
18 words, I will much appreciate that.

19 MEMBER BROWN: Do I get a second shot,  
20 Dennis? I didn't get a second round.

21 CHAIR BLEY: Yes, you did. You took two  
22 at once.

23 MEMBER BROWN: Oh --

24 CHAIR BLEY: Go ahead. Everybody can do  
25 everything they want now.

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1 MEMBER BROWN: No, I just, all I wanted to  
2 do was make people, give them the thought that I  
3 wanted to get the five fundamental principles into the  
4 rule somewhere. That's why I wanted some of the GDCs  
5 to be there. That's it.

6 CHAIR BLEY: Well, how do we get them into  
7 the rule? That's about the only way.

8 MEMBER BROWN: Yeah, and either --

9 MEMBER KIRCHNER: They're closely related,  
10 Charlie, to defense-in-depth.

11 MEMBER BROWN: Not really. That's not  
12 called out. I mean, we can put them somewhere.

13 MEMBER KIRCHNER: It's not called out now.  
14 But it has been called out in the past. If you read  
15 the advanced reactor policy statement, you'll get  
16 close to the gist of your fundamental principles.  
17 It's also --

18 (Simultaneous speaking.)

19 MEMBER KIRCHNER: -- by Mary Drouin and  
20 others. And whether it would help in elaborating  
21 defense-in-depth is something I'll take a look at.

22 CHAIR BLEY: Well, take a look. But  
23 they're also in the SRP. I mean, we just did chapter  
24 7 recently in there.

25 (Simultaneous speaking.)

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1                   MEMBER BROWN: Control of access was a  
2 fight in that one. Hopefully, that will get resolved.  
3 We'll see how that plays out with the Chairman letter.  
4 It should be another fight.

5                   CHAIR BLEY: Let's not talk about that one  
6 here.

7                   MEMBER BROWN: No, no, no, it's out of  
8 place.

9                   CHAIR BLEY: So I guess my own feeling is  
10 I'm not sure I want to put that in the letter. I  
11 think we ought to bring that up and talk with them a  
12 little. But I'm pretty happy having it in the SRP.  
13 And I think everybody has to look to that. That kind  
14 of puts things in. And they're going to have to meet  
15 it there if they're going to get past the review. So,  
16 you know, we can talk about it again next week.

17                   I guess all the members and consultants  
18 have had time to talk. But this is a public meeting.  
19 So I would turn to anybody who's on the Zoom meeting.  
20 If you would like to make a comment, go ahead in just  
21 a minute.

22                   And, Thomas, if we can get the public  
23 phone open so we could get public comments if anyone  
24 wants to comment, I'd appreciate it.

25                   So right now, anybody on the Zoom call

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1 who's not a member who would like to make a comment,  
2 it's your turn. We're stunned. Is the public line  
3 open?

4 MR. DASHIELL: The public line is open for  
5 comment.

6 CHAIR BLEY: Anyone listening in on the  
7 public line who would like to make a comment, please  
8 identify yourself and make your comment. You'll get  
9 another chance next week at the full committee  
10 meeting. So I guess we can close the public line.

11 Unless there's something further from  
12 members, this meeting is adjourned. See you next  
13 week.

14 (Whereupon, the above-entitled matter went  
15 off the record at 5:23 p.m.)

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**Notes:**

Added Comments should not be feared for something as complicated as Part 53. Staff suggested that we focus on the Overall Structure and the Revised Subparts B&C for our May 2021 Interim Report. We should be careful here, their management has asked us to highlight any areas where we see a potential problem, but we want to give the staff a chance to complete planned changes.

**Legend:**

Normal text—possible issue

**Bold Text**—near consensus on issue

Underlined text—likely added comments

<b>Topics for Inclusion in Interim Part 53 Letter</b>	
<b>Things We Like Enough to Include in Letter</b>	<b>Things We Don't Like</b>
<ul style="list-style-type: none"> <li>• <b>Overall Structure: Subparts A-I</b></li> <li>• <b>Include some key explanations</b> from the SOC in the rule text, perhaps in Subpart A – better to be explicit where necessary                             <ul style="list-style-type: none"> <li>○ Division between rule and guidance</li> <li>○ (Greg) Concerns about subjective language</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>(4) QHOs should not be used</b></li> <li>• Two-tiered approach                             <ul style="list-style-type: none"> <li>○ Not needed, confusing</li> <li>○ TBD</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• <b>(12) PRA requirement is good but graded PRA must be defined</b></li> </ul>	<ul style="list-style-type: none"> <li>• Prefer more prescriptive approach to safety functions</li> <li>• Safety criteria are consistent with 50/52</li> <li>• Safety functions are not</li> <li>• Some think the way staff has laid out issues is appropriate</li> </ul>
<ul style="list-style-type: none"> <li>• (17) How will forms of license be included and what will be the phase-by-phase requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Need to define over-arching GDCs for all advanced reactor concepts (GDC 1 – 5)</li> <li>• Prefer all QA and GDC 1 – 5 like material in one place in Subpart B rather than spread out across construction, ops, etc.</li> <li>• All of Appendix A should be included in the rule, with some flexibility to move some criteria to guidance                             <ul style="list-style-type: none"> <li>○ Consider staff proposal for a process to drive an applicant to a selection of Principle Design Criteria</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• <b>(27) Safety significance characterization (no longer have safety grade, not safety grade, risk-significant, not risk-significant)</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Do not remove single failure criteria</b></li> <li>• <b>Consider IAEA approach</b></li> <li>• <b>Agree with the staff</b></li> </ul>
<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• <b>(25) We think there should be pilot studies applying the new rule</b></li> </ul>
<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• What requirements will there be for transportation and onsite storage for microreactors</li> </ul>
<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Should incorporate sections similar to 50.55(a) to define required codes and standards</li> </ul>