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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

DECEMBER 5, 2001

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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488th MEETING

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
(ACRS)

AFTERNOON SESSION

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WEDNESDAY

DECEMBER 5, 2001

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ROCKVILLE, MARYLAND

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The Advisory Committee met at the Nuclear  
Regulatory Commission, Two White Flint North, Room  
T2B3, 11545 Rockville Pike, at 4:00 p.m., Dr. George  
E. Apostolakis, Chairman, presiding.

COMMITTEE MEMBERS:

GEORGE E. APOSTOLAKIS	Chairman
MARIO V. BONACA	Vice Chairman
F. PETER FORD	Member
THOMAS S. KRESS	Member-at-Large
DANA A. POWERS	Member
STEPHEN L. ROSEN	Member
WILLIAM J. SHACK	Member

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1     COMMITTEE MEMBERS:

2     JOHN D. SIEBER                     Member

3     GRAHAM B. WALLIS                 Member

4

5     ACRS STAFF PRESENT:

6     MICHAEL T. MARKLEY

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AGENDAPAGE

Risk-Informed 10 CFR Part 50 Pilot Program

4

(Option 2)

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

(4:01 p.m.)

DR. APOSTOLAKIS: We're back in session.

Before we start, I want to say something -- a few words about something else. I think all the members know that we have very good relationship with the ACRS staff, but today it was made clear to me that some of us are loved more than others. The staff found out that it's Dr. Kress' birthday today, so they bought a card and they had everybody sign, wishing him happy birthday. So this is for you, Tom.

DR. KRESS: Yes. You know, it's tough when you turn 55.

(Laughter.)

DR. APOSTOLAKIS: I know.

DR. POWERS: Dr. Kress, I'd like to point out that we were going to get you a cake with candles, but the fire protection group here said that that was too much of a load on the building.

MR. ROSEN: And at 55, what's the uncertainty band on that?

DR. APOSTOLAKIS: A factor of two.

DR. KRESS: I certainly appreciate this.

DR. SHACK: We called a little late, but we still don't know too many 130-year-olds.

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1 DR. APOSTOLAKIS: It's not normal the  
2 other way.

3 DR. KRESS: I certainly appreciate this  
4 from the staff and thank them very much. It's a very  
5 nice card with -- I will take that home and frame it  
6 and keep it.

7 DR. APOSTOLAKIS: Okay.

8 DR. KRESS: Thank you very much.

9 DR. APOSTOLAKIS: Now, back to business.  
10 The next topic is Risk-Informed 10 CFR Part 50 Pilot  
11 Program, Option 2. We had a Subcommittee meeting  
12 yesterday when -- yesterday afternoon. We discussed  
13 with the staff primarily the language of the rule and  
14 then the treatment requirements and so on. We did not  
15 get into the technical details of the categorization  
16 process and other issues, but we will have another  
17 Subcommittee meeting, it was agreed, maybe as early as  
18 February where we'll go into details in these matters.

19 The staff agreed to present today to us  
20 obviously a shorter version of their presentation  
21 yesterday, but we also heard from NEI, Mr. Peitrangelo  
22 and Mr. Heymer, yesterday, who unfortunately have  
23 other commitments today and they cannot be with us.  
24 But the staff promised to have one viewgraph where  
25 they would identify some differences of opinion

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1 without expressing any views since the other side is  
2 not here.

3 And, Mr. Reed, you have the floor.

4 MR. REED: Thank you, Dr. Apostolakis. As  
5 already mentioned, I'll be trying to go through a much  
6 briefer version than what was delivered yesterday, for  
7 the sake of time.

8 And I'll focus on the highlights from  
9 yesterday's meeting, basically focusing in on the two  
10 pieces of the draft rule language where I think most  
11 of the discussion centered -- on the categorization  
12 area, that's Paragraph C, and also in the RISC-3 area.  
13 And then we'll also be discussing some of the early  
14 comments or major issues, if you will, as requested by  
15 the Committee.

16 Before we do that, though, real quickly,  
17 a little bit of background here to get the Committee  
18 same page. As you'll recall, SECY-99-256 provided the  
19 rulemaking plan for Option 2 back in October of '99.  
20 It attached an advanced notice for proposed rulemaking  
21 that was published in March of 2000, which we got  
22 something between 100 and 200 comments. And SECY-00-  
23 194, which published in September of 2000, we provided  
24 preliminary views on those comments and also some  
25 additional thoughts on the regulatory approach.

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1 South Texas, as the Committee's very  
2 aware, was a technical effort that went on for I  
3 believe it was about two years and was just issued in  
4 early August. It was the majority of the tech effort,  
5 if you will, from the staff for about the last year,  
6 and it was a proof of content for Option 2. There's  
7 been numerous stakeholder interactions.

8 We cite three public workshops of note.  
9 Most recently there was one in November that I'll  
10 speak to a little bit here in a second. We've had two  
11 Commission briefings in September of 2000 following  
12 issuance of SECY-00-194, and then also in conjunction  
13 with the STP exemption approval, we also briefed the  
14 Commission in July of this year. Just recently, last  
15 week, I guess it was -- the 29th, I believe it was, in  
16 the Federal Register we published the draft rule  
17 language. And that, of course, was the major  
18 discussion yesterday at the Subcommittee.

19 I will mention here a little bit the  
20 request of the Committee. In our workshop that we  
21 held back in November, when we discussed the draft  
22 rule concepts, we discussed three alternative  
23 approaches for addressing RISC-3 treatment. Those  
24 approaches were, if you will, what I'll call almost a  
25 pure commercial approach, Alternative 1, which would

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1 basically have a simple statement in the rule that  
2 says basically maintain the design basis functions for  
3 this RISC-3 treatment, basically; Alternative 2, which  
4 is very much like what you see in the draft rule  
5 language, which has what I'll call minimum rule  
6 attributes in the rule, more of a programmatic  
7 approach but very -- a minimal amount of detail in the  
8 rule, hopefully; and then Alternative 3, which would  
9 be a much more detailed rule, which would, in my view,  
10 very simply put, would be like putting the South Texas  
11 FSAR in the rule. So there would be a lot of detail.

12 That was discussed during the workshop.  
13 We got good stakeholder feedback, and we drafted the  
14 rule that you see and what was published last week,  
15 and it's pretty close to Alternative 2, although the  
16 staff likes to think it's between Alternative 1 and  
17 Alternative 2, I think you heard yesterday. NEI  
18 believes it's about 1.95. So there's one little piece  
19 of disagreement.

20 A little more background to remind the  
21 Committee of just the general structure and approach  
22 here for Option 2 and how we're going from the old  
23 safety-related, non-safety-related world into the  
24 safety-significant, low safety-significant world.  
25 This is the infamous four-box diagram. It shows the

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1 RISC-1, RISC-2, RISC-3 and RISC-4 boxes. This is the  
2 bins that the expert panel would put the SSEs into.

3 If you're safety-related and you're  
4 safety-significant, as determined by this Risk-  
5 informed categorization process, you're in Box 1,  
6 RISC-1. If you're non-safety-related, and that  
7 includes important safety equipment, okay, and you're  
8 safety-significant, you're in Box 2. And if you're  
9 safety-related, low safety-significant, you go to Box  
10 3. And, of course, non-safety-related and low safety-  
11 significant is Box 4.

12 Additionally, I show a little bit of the  
13 requirements that would be in each box. Basically,  
14 Boxes 1 and 2 all requirements continue to apply for  
15 the safety-significant boxes, okay? So if they have  
16 anything on them, and of course Box 1 has a lot of  
17 special treatment requirements; those continue. Box  
18 2, if there are any special treatment requirements,  
19 those continue, and that will be a function of when  
20 the plant was licensed and what happened during the  
21 process, but it can have some special treatments  
22 requirements there. Those would continue.

23 DR. WALLIS: Usually, when you have axes  
24 like this, the most important things go up on the  
25 vertical and to the right on the horizontal, and this

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1 is not the case. The scale of deterministic increases  
2 to the left.

3 MR. REED: Yes. We didn't --

4 DR. WALLIS: Why don't you switch them  
5 around?

6 MR. REED: I think you might have had that  
7 comment before, actually, didn't you?

8 DR. WALLIS: I think I may have, but you  
9 haven't done anything about it, have you?

10 MR. REED: No. I haven't addressed that  
11 comment.

12 (Laughter.)

13 DR. APOSTOLAKIS: Well, it wasn't a  
14 Committee position.

15 MR. REED: But, in general, that's the way  
16 it works. The requirements stay on for Boxes 1 and 2.  
17 A lot of effort was focused on Box 3 during the South  
18 Texas project, and an all out effort's been focused on  
19 that for Option 2, and it's a major area of discussion  
20 with all the stakeholders.

21 And what we're trying to do here, just to  
22 remind the Committee again, Option 2 is really only  
23 risk informing what are called the special treatment  
24 requirements, or those assurance requirements that are  
25 in place throughout Part 50, 54, 52, Part 100, Part

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1 21. They're there basically just to try to provide a  
2 high level of assurance that in fact these SSEs  
3 perform design basis functions. We're not changing it  
4 to unknown requirements, okay, or to design basis  
5 events or anything like that. That's Option 3. Just  
6 these assurance requirements.

7 So one of the ground rules is for Option  
8 2 that we have to maintain design basis, and that's  
9 how we get stuck with this Box 3 and trying to do  
10 something to provide a sufficient level of regulatory  
11 assurance that we can say we're maintaining design  
12 basis functions without in fact imposing all the  
13 special treatment requirements. So that's kind of the  
14 quandary we're in there.

15 DR. APOSTOLAKIS: Now, I think the line,  
16 "ensure categorization assumptions," does not belong  
17 there, because that's something you have to do anyway  
18 for all four boxes. And it's not really a special  
19 requirement. I mean, presumably, everything we do has  
20 sound assumptions behind it, right?

21 MR. REED: Yes.

22 DR. APOSTOLAKIS: So I suggest that you  
23 take that out.

24 MR. REED: Yes. Could have taken it out.  
25 I mean it was a matter of judgment what I put in those

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1 boxes. I could have -- yes.

2 DR. APOSTOLAKIS: I mean the other stuff  
3 is different. Current requirements continue, I mean  
4 that makes sense.

5 MR. REED: Yes. That's right.

6 DR. APOSTOLAKIS: So you're telling the  
7 industry that they don't have to ensure categorization  
8 assumptions for RISC-3? You're not saying that,  
9 right?

10 MR. REED: What I'm saying is that your  
11 categorization assumptions have to be valid, okay?

12 DR. APOSTOLAKIS: Of course, but that's  
13 understood.

14 MR. REED: And you have to maintain them,  
15 yes.

16 DR. APOSTOLAKIS: That's understood.  
17 Everything we produce here has good assumptions.

18 DR. SHACK: No, but I think it means more.  
19 It means that the treatment is chosen to assure that  
20 that's --

21 MR. REED: Yes.

22 DR. APOSTOLAKIS: Use a different verb.

23 DR. SHACK: It's not as though we're  
24 making good assumptions or bad assumptions, that  
25 you're also essentially looking for treatment

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1 requirements.

2 MR. REED: Well, it's actually --

3 DR. APOSTOLAKIS: Oh, you mean the  
4 requirements that would make sure that the  
5 categorization assumptions remain valid. You need a  
6 better way to say that.

7 MR. REED: Yes. I think "treatment" is a  
8 bad word, actually, to use, and I think that set off  
9 an industry. What we're really saying is if you're  
10 assuming something in the categorization process, you  
11 ought to have a basis for that assumption, okay? And  
12 take a look at what you're assuming. If you're  
13 assuming a widget's going to perform --

14 DR. APOSTOLAKIS: So it's closer to what  
15 I'm --

16 MR. REED: It's exactly what you're  
17 saying. So it's probably an unfortunate term to use  
18 there.

19 As I mentioned, just to try to hit the  
20 highlights from the Subcommittee yesterday and not go  
21 through the entire draft rule language, and I know  
22 this Committee's very interested in the categorization  
23 part, so we'll focus on the categorization piece  
24 first, which is Paragraph C. I revised these bullets  
25 since yesterday. These are now in my language, and I

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1 do not make any attempt to take the actual draft rule  
2 language and put it in here. Now, if you like, I have  
3 the actual draft rule slides. If you want to discuss  
4 it, we could put that up.

5 DR. APOSTOLAKIS: We have that too.

6 MR. REED: But, basically, what Paragraph  
7 C is, first of all, it requires the use of an approved  
8 categorization process. Appendix T, which in earlier  
9 versions of this existed, does not exist in the draft  
10 rule now. That was a stakeholder comment that if you  
11 put a very detailed Appendix T in place, we're going  
12 to get into the same sort of boxes and exemption  
13 spaces that we have with things like Appendix R.  
14 That's a very onerous type of situation to deal with,  
15 and that can tie up a lot of resources, in fact, when  
16 you get into that kind of framework. So we're  
17 commenting them and basically using an approved  
18 categorization process, which then requires a  
19 submittal and a review by the staff.

20 You must have an expert panel or an  
21 Integrated Decisionmaking Process to determine the  
22 safety-significance of the function. In fact, this  
23 entire thing really revolves around an expert panel  
24 and giving them the sufficient information to make a  
25 risk-informed judgment about the safety significance

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1 of SSCs. So you must have that expert panel.

2 And that panel must use plant-specific  
3 PRAs with internal events at full power, at a minimum,  
4 okay? And in addition to that, we prefer you use PRA  
5 as much as possible, but we're only requiring that at  
6 full power internal events PRA. And if you're not --  
7 you don't have everything in a PRA, then you must  
8 evaluate the SSC function for whatever other tools you  
9 have available -- safety significance in other modes,  
10 in external events, shutdown, whatever, fires.  
11 Whatever tools you have available, use that  
12 information and give that to the expert panel.

13 DR. APOSTOLAKIS: Now, I got the  
14 impression from yesterday's discussions, plus from  
15 reading the NEI Table 4, there is more just having an  
16 IDP. Both the industry and you would expect some  
17 structure in the deliberations. Maybe that's  
18 something you want to put here.

19 MR. REED: I think that's a good point.  
20 I think it's also an observation that we've had to  
21 date from watching the pilots, that when you get to  
22 watching these expert panels and especially when they  
23 get outside the quantitative piece, where you know --  
24 they're very good at running through the PRA, the RAW,  
25 the Fussell-Vesely, using the quantitative piece, but

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1 when they get outside of that and they're in the  
2 qualitative portion and discussion, I think that came  
3 up yesterday, it's been an observation we've had, it  
4 probably needs more structure. I think NEI  
5 understands that too.

6 DR. APOSTOLAKIS: I can tell you, I mean  
7 when we reviewed the South Texas application, the fact  
8 that there was a lot of structure in the expert panel  
9 deliberations was something that was a positive --

10 MR. REED: Yes. I think it makes it a  
11 more efficient panel.

12 DR. APOSTOLAKIS: So you agree with that.  
13 Let's see if you agree with the next. Must use a  
14 plant-specific PRA with internal events at full power  
15 and uncertainty analysis.

16 MR. REED: The key words were "and  
17 uncertainty analysis."

18 DR. APOSTOLAKIS: That's right.

19 MR. REED: I'll have to look to Glenn or  
20 Mike or Mark or whoever.

21 DR. APOSTOLAKIS: I'm just telling you  
22 that there's going to be a lot of discussion of this  
23 when we discuss --

24 MR. REED: Yes. I understand.

25 DR. APOSTOLAKIS: -- categorization

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1 process. And there is evidence that if you use point  
2 estimates which are ill-defined, you may not get the  
3 categorization that would be the best. And as I said  
4 yesterday, one of those papers was written by your  
5 colleagues here. And if you use mean values, then  
6 it's okay. You get a pretty good categorization. But  
7 point values are -- we don't know what they are, and  
8 the IPEs confirm that. I mean if you look at the  
9 IPEs, some of the numbers are way out the mainstream,  
10 so to speak. So it seems to me that that would be a  
11 requirement at the end.

12 And, again, it's not difficult to do  
13 anymore. This is not 1980 anymore. I mean there are  
14 codes, it's done routinely with our distributions for  
15 inputs all over the place. So I think that will be a  
16 useful thing to put. Otherwise you're going to pay  
17 the price or the licensee or the petitioner will pay  
18 the price later. When you guys will start asking  
19 questions -- why did you have this point value here  
20 and there, what is the basis, and so on.

21 One of the things that most people don't  
22 seem to appreciate is that an uncertainty analysis is  
23 easier to defend than point estimates. It's much  
24 easier to defend. So, anyway, that is going to come  
25 up by at least one member of this --

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1 MR. ROSEN: It also is very important to  
2 the expert panel to know the bounds of uncertainty on  
3 what it's using, because if you have the component  
4 that comes out of the PRA at close to one of the  
5 thresholds, Fussell-Vesely or RAW, say it's 2.1, well,  
6 that's just more important than two, and you can't put  
7 it in the low safety-significant category. But what  
8 if it comes out 1.9? Now, you're tempted to put it in  
9 the low safety-significance category, but you cannot  
10 fail to remember in two years you're going to do an  
11 update of the PRA, based on the actual performance of  
12 the plant, and it's going to shift the numbers a  
13 little bit, and you don't want to go there. You do  
14 not want to be a plant that has a bunch of components  
15 that move from category to category based on the  
16 Bayesian update, because that could wreak havoc, and  
17 you have to go back then and look at everything you've  
18 done since the last update.

19 So the expert panel wants to know -- when  
20 it gets a RAW value, it wants to know the uncertainty  
21 on that number. It will want, typically, to place  
22 things in a higher category. If the number's very  
23 well known, that's one thing, but, typically, they're  
24 going to move -- the expert panel will move things to  
25 a higher category.

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1 DR. APOSTOLAKIS: I think a lot of it  
2 depends -- I mean there were at least two papers that  
3 I'm aware of where people did the categorization, not  
4 the same, necessarily, as you have, using point  
5 estimates that they found someplace and then  
6 distributions and the mean values of distributions.  
7 And a general conclusion, although, you know, there  
8 may be exceptions to that, is that if the point  
9 estimate you're using is to the right of the mean,  
10 it's higher than the median, most likely you're going  
11 to get conservative categorizations. If it's to the  
12 left, you will get non-conservatives in the sense that  
13 an SSC that belongs, say, to Category 3 may end up in  
14 4. And I think these are useful insights that will be  
15 helpful to you.

16 MR. CHEOK: This is Mike Cheok.

17 DR. FORD: Can I ask a physical question.  
18 Why do you have the --

19 PARTICIPANT: We've got a guy.

20 DR. FORD: Oh.

21 MR. CHEOK: This is Mike Cheok from the  
22 staff. I guess we've all come prepared to talk about  
23 uncertainties in February, in the February  
24 Subcommittee meeting. But the one comment I have  
25 today, though, is that the uncertainties that we are

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1 talking about are the parameter uncertainties. I  
2 believe that in categorization the big uncertainty  
3 that would affect the results would be the stated  
4 knowledge or the incompleteness uncertainties. And I  
5 think we're trying to address that through the IDPs  
6 and in a structured IDP process. I think we can  
7 handle the data uncertainties in the parameters itself  
8 but not the epistemic type uncertainties.

9 DR. APOSTOLAKIS: Very true. By the way,  
10 the data uncertain is not epistemic. You're right,  
11 you're right. But if we do that in the analysis part,  
12 you know, take care of the parameter uncertainties,  
13 then the burden on the panel will be less. And I  
14 think that's what Mr. Rosen's comment was also about.  
15 It will be less. So the more you do to help the  
16 panel, the better off you will be.

17 MR. REED: Sure.

18 DR. APOSTOLAKIS: Dr. Ford?

19 DR. FORD: I have a physical-based  
20 question: Why do you have the qualifier at full  
21 power?

22 DR. APOSTOLAKIS: Because that's the only  
23 one they have.

24 DR. FORD: That's the only one.

25 DR. APOSTOLAKIS: That's the only one they

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1 have.

2 DR. FORD: Only one what?

3 DR. APOSTOLAKIS: PRA.

4 DR. FORD: Oh.

5 DR. APOSTOLAKIS: It's recognition of  
6 reality.

7 DR. POWERS: Not for want of our trying.

8 DR. APOSTOLAKIS: Yes.

9 DR. FORD: The reason why I asked the  
10 question, not being a PRA expert, is that there are  
11 other degradation mechanisms that occur not at full  
12 power.

13 MR. REED: Yes. This process, though, is  
14 going to be assessing the significance at all modes  
15 and for all events. It's just that PRA at full power  
16 is what -- we're going to require you have that.

17 DR. APOSTOLAKIS: You know, as the staff  
18 stated yesterday -- I think they're right -- for the  
19 modes for which you don't have PRA, then they're  
20 taking you to a conservative categorization.

21 MR. REED: Exactly.

22 DR. APOSTOLAKIS: In other words, you're  
23 paying the price.

24 MR. REED: Which would tend to make things  
25 more put up in the higher boxes.

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1 DR. APOSTOLAKIS: Unless you use point  
2 estimates.

3 MR. REED: Right.

4 MR. ROSEN: In terms of structure, we  
5 talked about the questions also that the South Texas  
6 exemption used.

7 MR. REED: Right.

8 MR. ROSEN: It provided a lot of  
9 structure, and we'd encourage you to think about if  
10 not having that, having something equivalent.

11 MR. REED: Yes, yes. I'm sure you have a  
12 pretty good list of comments that you want to provide.  
13 I know those are two are coming for February, and I'm  
14 sure there's many more.

15 DR. APOSTOLAKIS: Sure.

16 MR. KELLY: This is Glenn Kelly from the  
17 staff. Regarding the -- if you're using a non-pure  
18 technique to analyze things at the Plant, those that  
19 were for external events where, for example, they used  
20 the five methodology of a seismic margins method,  
21 these are things that are going to take you because  
22 those methods inherently have some conservatisms in  
23 it, theoretically. They should be giving you  
24 conservative results.

25 However, for things like shutdown and mode

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1 changes, where we do not have particular methods that  
2 can be relied upon at this point to judge whether or  
3 not something's important, where it's going to be more  
4 engineering judgment at this point, you're not  
5 necessarily going to end up with the same kind of  
6 assured conservatism that you would for the external  
7 events.

8 DR. APOSTOLAKIS: But even for the  
9 external events, when I read the NEI document, I had  
10 a lot of questions, because I'm not sure it's fair to  
11 say these are conservatives analyses; these are  
12 screening analyses. So how one determines the --

13 MR. KELLY: The Fussell-Vesely it's not  
14 clear, and that's correct, because it's not clear what  
15 the Fussell-Vesely is going to tell you. And with the  
16 five methodology --

17 DR. APOSTOLAKIS: Right.

18 MR. KELLY: -- you can't really do that.  
19 What it will do is will potentially tell you whether  
20 components in an area are important or not, but it  
21 won't -- that's not the same as giving you a Fussell-  
22 Vesely --

23 DR. APOSTOLAKIS: Well, the basic problem  
24 that I see is that you don't have a CDF from those  
25 models.

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1 MR. KELLY: That's correct.

2 DR. APOSTOLAKIS: And these measures  
3 depend on the CDF. So these are the -- the sooner we  
4 meet, I think the better off we'll all be.

5 DR. KRESS: Yes, George, that brings to  
6 mind a question that's bothering me for some time. If  
7 you look at importance measures, RAW and Fussell-  
8 Vesely, both of them have the absolute value -- let's  
9 say with respect to CDF --

10 DR. APOSTOLAKIS: Yes.

11 DR. KRESS: -- both of them have the  
12 absolute value of CDF in them. That means you're  
13 treating a plant with a low CDF differently than  
14 you're treating a plant with a high CDF. You could be  
15 treating them differently. And it seems to me like  
16 that's not the right thing to do and that there might  
17 ought to be some sort of a virtual CDF absolute that  
18 you don't want to get close to, and you define an  
19 importance measure with respect to a component as to  
20 how much would contribute to getting up to that  
21 absolute value that you're willing to accept as a kind  
22 of importance measure for this kind of classification.

23 MR. ROSEN: I don't think you're right  
24 about that, Tom. The risk achievement worth is a  
25 ratio. So it has -- for a plant with a low CDF and a

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1 plant with a high CDF, you're going to get a ratio.  
2 That's what RAW is --

3 DR. APOSTOLAKIS: Well, that's what he's  
4 objecting to.

5 DR. KRESS: That's what I'm objecting to.

6 DR. APOSTOLAKIS: He's objecting to it.  
7 He says that --

8 DR. KRESS: That's exactly what I'm  
9 objecting to.

10 DR. APOSTOLAKIS: -- you rank them, and  
11 then you treat the Class 1 the same as in the other  
12 one.

13 MR. ROSEN: No. I'm not making myself  
14 clear. Risk achievement worth is --

15 DR. APOSTOLAKIS: Both of them are ratios.

16 MR. ROSEN: Whether or not you're not at  
17 South Texas, a very low overall CDF, or some much  
18 earlier plant, they're both ratios --

19 DR. APOSTOLAKIS: Exactly.

20 MR. ROSEN: -- within themselves. So it  
21 tends to wash out.

22 DR. KRESS: No. That's why I'm objecting  
23 to it; it doesn't.

24 MR. ROSEN: Well, that's one I don't  
25 agree.

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1 DR. APOSTOLAKIS: I think maybe another  
2 way of stating is the thresholds of 0.005 for Fussell-  
3 Vesely and two for RAW could be different depending on  
4 the absolute value of the CDF.

5 DR. KRESS: Absolutely.

6 MR. ROSEN: That's the part I don't agree  
7 with. We need to work on that.

8 MR. CHEOK: I think the example here is  
9 that if the baseline CDF is ten to the minus four, a  
10 plant with a RAW value of two would get a delta CDF  
11 increase of ten to the minus four. Whereas a baseline  
12 plant CDF of ten to the minus six would only get an  
13 increase of ten to the minus six. So the point there  
14 is --

15 DR. APOSTOLAKIS: That's the essence of  
16 the argument.

17 MR. CHEOK: And the response to that, Dr.  
18 Kress, is that we do have a requirement in the rule  
19 language that says that your increase in risk, i.e.,  
20 CDF and LERF, should be small and conform to that  
21 specified in Reg Guide 1.174.

22 DR. APOSTOLAKIS: Right.

23 DR. KRESS: Which means you have to end up  
24 with different thresholds for what you use to  
25 determine significance.

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1 MR. CHEOK: That's correct. In essence,  
2 those thresholds could be different for the different  
3 plants, for different baseline CDFs.

4 DR. KRESS: Somehow I don't see that  
5 concept in here.

6 DR. SHACK: But it's in the NEI document,  
7 but they sort of admit that when you go through and  
8 you don't -- you know, if in your first cut you don't  
9 make it, you have to go back and adjust it.

10 DR. KRESS: It's in the NEI document,  
11 which we haven't reviewed.

12 DR. APOSTOLAKIS: No, but the other side  
13 --

14 DR. SHACK: He's right, it is capped in an  
15 absolute sense by the 1.174 criteria.

16 DR. APOSTOLAKIS: But there's another side  
17 to it. What if a licensee uses 0.005 and two, and  
18 everything he finds is fine, the delta CDF is low and  
19 so on? But if you change the thresholds and remove  
20 some of the components from RISC-1 down to RISC-3, you  
21 still get a delta CDF that's low. You don't allow  
22 that because you have fixed the thresholds. So there  
23 should be some flexibility there, shouldn't there?

24 DR. SHACK: Only if you worry about that  
25 problem.

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1 DR. KRESS: Well, if I'm the licensee, I  
2 do.

3 DR. APOSTOLAKIS: Well, I mean, gee, if I  
4 were a licensee --

5 DR. SHACK: It's the licensee's problem --

6 DR. APOSTOLAKIS: No, because if you --

7 DR. SHACK: -- from a regulatory problem.

8 DR. APOSTOLAKIS: Well, the regulator must  
9 say, "Here are some suggestions from the thresholds,  
10 but we're open to listening to other comments." If  
11 you put them there as an absolute -- but I think this  
12 comes back --

13 DR. SHACK: They're not going to be in the  
14 rule?

15 DR. APOSTOLAKIS: What?

16 DR. SHACK: They're not going to be in the  
17 rule.

18 DR. APOSTOLAKIS: They're not going to be  
19 in the rule. It's going to be in the guidelines.

20 MR. CHEOK: As a matter of fact, the top  
21 event prevention essentially does what you would  
22 suggest, George, in that you could pick and choose  
23 what you want to put in RISC-1 and include that in  
24 your success paths.

25 DR. APOSTOLAKIS: I hear that licensees

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1 using some other methods for importance measures, and  
2 they're getting many more components going down to  
3 one. So you really want to not to ossify the methods.  
4 But it comes down to the old argument -- just go and  
5 find a gypsy, if she tells you what to do, the delta  
6 CDF is all right.

7 DR. SHACK: It's acceptable. It may not  
8 be optimal.

9 DR. APOSTOLAKIS: Yes, because of the  
10 economy of the country. And I think the point that  
11 Tom raised -- you're happy, Tim, right; we're arguing  
12 among ourselves.

13 (Laughter.)

14 It comes back to -- guys, there's one  
15 meeting here.

16 DR. POWERS: If he wants to argue among  
17 himself, he doesn't want any distractions.

18 DR. APOSTOLAKIS: I think if you follow  
19 what Tom is saying with the absolute CDF, then you're  
20 closer to the ROP. If you follow the current CDF,  
21 you're closer to my interpretation of ROP, which will  
22 come down. Now, as you're trying to maintain the  
23 current levels or, as he's saying, as long as you're  
24 below the regulatory goals, it's okay. So this point  
25 will keep coming back, I think. Now, Tim, back to

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1 you.

2 MR. REED: Okay. Additionally, then the  
3 rule requires the IDP to consider --

4 DR. APOSTOLAKIS: Cindi is smiling over  
5 there. Why is that?

6 DR. KRESS: They probably had this  
7 discussion among themselves at one time.

8 MR. REED: As I mentioned, it requires you  
9 have an IDP, and then the IDP must consider all the  
10 information I'll just briefly mention -- the PRA  
11 results, the non-PRA information, defense in depth and  
12 safety margins. So this is clearly a risk-informed  
13 reg guide 1.74, if you will, type approach that we're  
14 instituting here. If something's low, if an SSC's  
15 low, then there has to be a justification for it to be  
16 low safety significant.

17 DR. APOSTOLAKIS: Now, wasn't that an  
18 issue that was raised yesterday, I believe, by my  
19 colleague to the left here, supported by others, that  
20 all this is focusing too much on CDF and LERF, and  
21 that some components --

22 MR. REED: True.

23 DR. APOSTOLAKIS: -- SSCs are there to  
24 prevent perhaps a higher consequence -- I mean, yes,  
25 a higher consequence -- I mean low consequence, high

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1 frequency and that there may be a way of having those  
2 --

3 DR. BONACA: Yes. I mean the  
4 classification has the consideration of frequency  
5 consequence, and here it's just simply CDF. And  
6 anything below core damage doesn't seem to be  
7 considered risky.

8 MR. REED: At least my interpretation of  
9 that was -- that's another way of addressing defense  
10 in depth. If you look at the NEI document, they have  
11 that table there, and it's a little bit confusing, but  
12 it talks about the frequency of the event and then the  
13 number of redundant diverse systems you have. For  
14 very frequent events below consequences, we would want  
15 to have redundancy and diversity there, in fact, to  
16 make sure it's low. But there's other ways of doing  
17 that. I think what you're suggesting is another way  
18 to potentially do that.

19 DR. APOSTOLAKIS: Well, and also the  
20 argument has been made in the past that the licensees  
21 will take care of those for other reasons.

22 MR. REED: If they affect power operation,  
23 clearly.

24 DR. BONACA: My main comment yesterday was  
25 that you're still struggling with justifying --

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1 MR. REED: Yes.

2 DR. BONACA: -- defending functionality  
3 for RISC-3 because you still believe, probably because  
4 of that curve, that they need to be protected, those  
5 functions. And you're not convincing me yet that  
6 you're doing that. Conversely, if you take RISC-3  
7 from the box and divide it then based on the risk  
8 consequence, you could practically divide those  
9 between those that you preserve and you can maintain  
10 under Appendix B, and the majority will go under RISC-  
11 4.

12 MR. REED: Yes. I mean there's clearly a  
13 set of SSCs in Box 3 which have no nexus to safety.

14 DR. BONACA: Absolutely.

15 MR. REED: And what have been termed  
16 ornaments, if you will. And you were suggesting for  
17 those we really don't need anything at all.

18 DR. BONACA: I would like to just insert  
19 right here the reason why it's important, yesterday we  
20 discussed what does functionality mean, and we used a  
21 good example of 89.10, motor-operated valves. And we  
22 concluded that for those in RISC-3 now, those MOVs  
23 would not be stroke tested, right? They won't be  
24 anymore under 89.10.

25 MR. KELLY: No, I believe -- this is Glenn

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1 Kelly from the staff. The indication was that there  
2 would be no requirements under RISC-3 that they  
3 receive special treatment.

4 DR. BONACA: Right.

5 MR. KELLY: But they would be required to  
6 retain their functionality.

7 DR. BONACA: And what does that mean?

8 MR. KELLY: And, certainly, to one extent,  
9 I expect that inspector might ask a licensee if it  
10 hadn't stroke tested its valve in five years why in  
11 the world they think it's functional?

12 DR. BONACA: Because yesterday, Steve, you  
13 commented that they would not be anymore under 89.10.  
14 So, therefore, they would not be stroke tested.

15 MR. KELLY: That's correct, they would not  
16 be under 89.10.

17 MR. ROSEN: They would not be under 89.10,  
18 but that just means that they could be -- their  
19 frequency would be longer. That doesn't mean they'll  
20 never be tested.

21 DR. BONACA: But the reason why --

22 MR. ROSEN: They might be dynamically  
23 tested now, and they might be statically tested.

24 DR. BONACA: Well, one of the reasons why  
25 it did not work --

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1 MR. ROSEN: It doesn't mean if you put  
2 something in RISC-3 you're never going to test it.

3 DR. BONACA: I understand that, but let me  
4 just say one of the reasons why they did not work  
5 under design conditions was because the stems were  
6 underdesigned. One of the reasons was because if you  
7 don't stroke stress in that condition, the grease  
8 hardens with time, and they don't work.

9 MR. ROSEN: Right.

10 DR. BONACA: So here we're leaving -- you  
11 know, here I'm still left, as a member, very uneasy  
12 about what this functionality means. We determined  
13 through 89.10 that in order to demonstrate  
14 functionality you have to stroke test them under  
15 design conditions -- accident conditions, okay, in  
16 addition to improving the stems. Because now we're  
17 saying they low safety significance so we put them  
18 there, and then we'll determine what you have to do.  
19 And it seems to me that the very requirements we  
20 implemented to assure performance are being removed.  
21 That's what makes me uneasy. I mean I just don't know  
22 at the end of the day what this demonstration of  
23 functionality will mean.

24 MR. ROSEN: Well, it starts with the  
25 answer to the question it does it matter whether it

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1 works or not? And the answer is it's very low  
2 significance.

3 DR. BONACA: Well, no, you see, because if  
4 you use the curve I was discussing there, a certain  
5 percent of those in RISC-3 will be still safety  
6 significant in my book, as they were in the FSAR. The  
7 rest would be not.

8 MR. ROSEN: They will be in RISC-3, if  
9 they're safety significant.

10 DR. BONACA: Because you're using only  
11 CDF, okay? And you're assuming that meeting Part 100  
12 or not exceeding Part 100 is irrelevant. So you're  
13 making certain assumptions that the guy on the other  
14 side may not agree with you; in fact, they probably  
15 won't.

16 DR. APOSTOLAKIS: Anyway, the comment is  
17 that they should look at these things and possibly add  
18 something else in addition to CDF and LERF, some  
19 consideration. Because even defense in depth, I mean  
20 it was said earlier that it will take care of these  
21 things for defense in depth. Well, defense in depth  
22 in the abstract doesn't mean anything. You have to  
23 have something to defend, right? And, typically, when  
24 we talk about defense in depth, we have in mind the  
25 release or radioactivity over dome of the core. If

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1 you say, "No, now I'm interested in something else,"  
2 then defense in depth will have a different result.

3 MR. KELLY: This is Glenn Kelly --

4 DR. APOSTOLAKIS: I mean the concept is  
5 the same, but --

6 MR. KELLY: This is Glenn Kelly from the  
7 staff. In the pilots, this issue came up about the  
8 defense in depth. And defense in depth, as I  
9 understand how it's supposed to applied here is  
10 defense in depth for both the deterministic -- each  
11 component is supposed to have its functions defined  
12 for -- its deterministic safety functions as well as  
13 any functions that are attributes that are given to it  
14 or taken credit for it under the PRA evaluation. And  
15 then you look at to what extent, if you remove the  
16 treatment for this equipment, whether or not you're  
17 affecting defense in depth in particular for your  
18 deterministic evaluation, because, in part, the PRA  
19 order is already counting in some ways for the defense  
20 in depth.

21 So they are supposed to be looking at,  
22 which is one of the reasons why something like standby  
23 gas treatment system would probably be retained under  
24 a defense-in-depth argument, because it doesn't affect  
25 core damage frequency, it doesn't affect LERF. But it

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1 is a defense-in-depth thing for your Part 100. So I  
2 would expect that that would end up being a RISC-1  
3 rather than a RISC-3.

4 MR. ROSEN: That's why the expert panel is  
5 there. If you didn't do that, you wouldn't need an  
6 expert panel for the components that are for model,  
7 the model components. You'd just go "click" and you'd  
8 get the answer, but that's not how you do it. You get  
9 the answer and then you subject it to a review by the  
10 expert panel.

11 DR. APOSTOLAKIS: But this is part of what  
12 we asked for structure of the --

13 MR. REED: Exactly.

14 DR. SHACK: But even in that case, when we  
15 looked at the questions that the panel looked at in  
16 South Texas, it didn't address Mario's concerns,  
17 because the questions were all aimed at preventing CDF  
18 and LERF.

19 DR. APOSTOLAKIS: But Mr. Kelly now  
20 expanded it.

21 MR. ROSEN: But the questions aren't the  
22 only -- the questions that are asked are answered for  
23 the expert panel, but they're not the only questions  
24 the expert panel asks. It asks questions about  
25 shutdown, it asks questions about --

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1 DR. SHACK: I think what Mario is asking  
2 is do you make them more explicit? Does it sort of  
3 somehow get dragged in? Maybe, but if the criterion  
4 are RAW and Fussell-Vesely and the questions are the  
5 questions, then it looks like all the explicit  
6 criteria are CDF-oriented.

7 DR. APOSTOLAKIS: So let's wrap it up by  
8 saying that the deliberations of the panel, I think,  
9 we need a lot of guidance there. We agree that's part  
10 of it.

11 MR. REED: Certainly more structure.

12 DR. APOSTOLAKIS: We shouldn't rely on the  
13 kindness of the panel too much.

14 DR. SHACK: Even if they're strange.

15 DR. APOSTOLAKIS: Even if they're strange.  
16 Thank you, Will. You're the only one who appreciated  
17 the comment.

18 MR. REED: Additionally, the draft rule  
19 requires -- and this is what I refer to as the bottom  
20 line -- that the potential increase in CDF and LERF  
21 will be small. And this is -- I think it's already  
22 been mentioned to the Committee -- this is sort of, in  
23 effect, maintaining the current risk profile of the  
24 plant, this approach here, unlike some more absolute  
25 value. So this is currently the way we're going.

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1           You'll have to monitor the performance  
2           condition of SSCs. It can affect the categorization  
3           results. And if you find integrated situation or you  
4           get -- whatever information you get back, you need to  
5           take action and maintain the validity of that SSC,  
6           SSCs categorization, and then to maintain the  
7           categorization through time. So it's update the PRA  
8           and categorization as you either change the  
9           configuration of the plant or you obtain operational  
10          data. So this is make it valid and keep it valid,  
11          basically.

12                 DR. APOSTOLAKIS: I don't understand this,  
13                 "must monitor the performance of condition of those  
14                 SSCs that can affect the categorization results."  
15                 What does that mean? How would the results be  
16                 affected by the performance?

17                 MR. REED: I think that's an effort -- and  
18                 I might need a little help on this -- but that's an  
19                 effort to note that -- there's thousands and thousands  
20                 of assumptions, as you guys are well aware. Some are  
21                 very important, some are not important. What you  
22                 monitor, you want to monitor those that really affect  
23                 the results, the categorization results, and that's  
24                 what you want to focus your energy on and maintain.  
25                 There are assumptions in there that really don't make

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1 any difference at all, whether there's RISC-3 or  
2 whatever.

3 DR. APOSTOLAKIS: But if I have a  
4 component that has been categorized RISC-1 or even  
5 RISC-3 and I find that its performance is below par,  
6 how would that change the categorization? I mean I  
7 would probably be looking somewhere else why the  
8 performance is poor.

9 MR. REED: First of all, you'd make sure  
10 that you're still in keeping with the assumptions you  
11 made for its reliability, availability and capability.  
12 That would be the first thing you'd do. And,  
13 hopefully, the assumptions you're making for that  
14 component, the data you're collecting, is in keeping  
15 with that. If not, then you'd have to alter those  
16 assumptions.

17 DR. APOSTOLAKIS: But would that be  
18 subsumed then by the last bullet?

19 MR. REED: Exactly. Yes, they really do  
20 overlap.

21 DR. APOSTOLAKIS: Yes. That's why I don't  
22 need that.

23 MR. REED: Yes. A lot of these actually  
24 do overlap. I mean I break them out for bullets, but  
25 --

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1 DR. APOSTOLAKIS: As I update my PRA, if  
2 I have lots of --

3 MR. REED: These three really all kind of  
4 go together.

5 MR. ROSEN: It will affect the shifting  
6 the categorization of a component. But you don't want  
7 to do that.

8 MR. REED: Yes. That's actually --

9 MR. ROSEN: You guard against that in your  
10 original categorization.

11 MR. REED: That's actually a very good  
12 point.

13 MR. ROSEN: Either way it creates havoc.

14 MR. REED: Yes.

15 MR. ROSEN: Operationally -- handling the  
16 program.

17 MR. REED: Yes. That's an excellent  
18 point.

19 DR. APOSTOLAKIS: I would just delete it  
20 and make it part of the last bullet.

21 MR. ROSEN: And I know that because some  
22 of ours shifted, and it's not fun to have to deal with  
23 that.

24 DR. APOSTOLAKIS: Which way?

25 MR. REED: If they go up, that's the

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1 problem.

2 MR. ROSEN: Once they move up, that's a  
3 real problem.

4 MR. REED: Yes. Once you take something  
5 out of the special treatment requirements and release  
6 --

7 DR. APOSTOLAKIS: But why did they move,  
8 Steve? Because of performance or --

9 MR. ROSEN: I don't remember now.

10 DR. APOSTOLAKIS: Okay.

11 MR. ROSEN: There were very few cases, but  
12 there were a couple that were particularly nasty.  
13 They had to be fixed, and we had to go back and look  
14 at what had we done on these components since we  
15 categorized them, et cetera, et cetera.

16 DR. APOSTOLAKIS: Okay.

17 MR. REED: Okay. The other area that we  
18 had, I think, the most discussion on yesterday was the  
19 RISC-3 treatment, and I've already mentioned the RISC-  
20 1 and RISC-2 treatment, in passing, that those  
21 requirements are basically you're maintaining all the  
22 requirements on those SSCs. RISC-3, the focus,  
23 though, is to have sufficient regulatory requirements  
24 to maintain the design basis functions, basically.

25 So what we're doing in this portion of the

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1 draft rule is, first, taking off the special treatment  
2 requirements, and then we're replacing them with the  
3 requirements you see in Paragraph 50.69(d)(2). And,  
4 basically, that says you must have processes to  
5 control design, procurement, installation, maintenance  
6 inspection tests and surveillance, corrective action,  
7 oversight and configuration. So it's not simply a  
8 matter of saying, okay, you're going to maintain your  
9 design basis function; it's also a matter of having  
10 these processes in place, okay?

11 And if you look at the draft rule, you'll  
12 see that under each one of these headings, we have at  
13 least one or, in some cases, two sentences that  
14 provide a minimal set of attributes for what we're  
15 thinking that you need to do for each of these  
16 processes. But the bottom line is, is that you need  
17 to apply the pertinent programmatic requirements to  
18 provide reasonable confidence of the capability of  
19 RISC-3 SSCs to perform the safety-related functions  
20 under the design basis conditions.

21 Now, this is -- I think the Committee had  
22 quite a bit of discussion yesterday -- how did we  
23 determine this was a sufficient level of regulatory  
24 confidence and so forth? And I think this is clearly  
25 an area where we've had a lot of discussion in South

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1 Texas. We've had discussion on Option 2; I think  
2 we'll continue to have that kind of discussion. And  
3 I'll point out it's an area that I think is a major  
4 issue area here in a couple of slides.

5 MR. ROSEN: The NEI wanted to discuss  
6 those, and they characterize this as something in  
7 between Appendix B and no Appendix B.

8 MR. REED: Yes, they did.

9 MR. SCARBROUGH: Right. This is Tom  
10 Scarbrough with the staff. It's sort of -- if you  
11 look at it, it's sort of on the order of what might be  
12 imposed for station blackout equipment and ATWS  
13 equipment. It's somewhere -- it's not the no controls  
14 whatsoever so that you can down to what's commercial  
15 practice kick and count, receipt inspection or tool  
16 pouch maintenance.

17 It's not all the way down to that level.  
18 It's probably somewhere in between. It's something  
19 that you might expect for under station blackout  
20 equipment or ATWS. But in terms of the actual  
21 details, we haven't gotten down to that level. We're  
22 trying to say that it's not down to the complete low  
23 level, but it's somewhere in the middle.

24 MR. ROSEN: Yes. I think we felt, and I  
25 think the industry continues to feel, that if you end

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1 up with a third program, in other words, no program,  
2 the full program and something in between, then a lot  
3 of the benefit of this tends to go away.

4 MR. SCARBROUGH: Right. Well, that's why  
5 I think it's important to realize that what we're  
6 talking about is probably on the order of what's  
7 already been implemented for the station blackout and  
8 ATWS equipment. It's equipment that's a lot of  
9 commercial grade, but it has some controls over its  
10 procurement, and that's on the order of what we're  
11 talking about. There's a lot more flexibility.

12 I think there was a question that  
13 yesterday came up in terms of what are some of the  
14 differences, and we were talking about that today in  
15 terms of some of the major differences are the  
16 flexibility. You have these very high-level  
17 attributes that we're talking about. There's a lot  
18 less prescription in the QA criteria. You don't have  
19 the 16 criteria; you have eight processes which are  
20 very general. You don't have the very specific  
21 control of measuring test equipment. You still will  
22 deal with that under the general functionality  
23 requirement, but you don't have the very specific type  
24 of QA criteria, which you have to have very specific  
25 procedures and documentation and recordkeeping.

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1 There's a lot more flexibility in how you do that.

2 And we talked about procurement yesterday.

3 It's a lot more flexible in terms of getting it from  
4 vendors. For certain procedures -- for certain  
5 activities, such as some types of maintenance where  
6 it's not technically difficult to do, you can do a lot  
7 more maintenance without detailed procedures, more  
8 general procedures, like skill a craft type of  
9 procedures, that would be allowed.

10 In a specific area, such as motor-operated  
11 valves, which we were talking about, in this case, the  
12 way the rule is currently drafted, this draft, 55(a)  
13 is still applied, and so they still would have ISI and  
14 IST processes. And 55(a), in the most recent revision  
15 of the regulations, applies an overlaying design basis  
16 capability verification long term for motor-operated  
17 valves. So that would be accommodated even for these  
18 low risks. But how they would accommodate that is  
19 through the risk-informed programs that are being  
20 developed by ASME, the code cases and such. They  
21 allow less margin and longer frequencies for testing  
22 for these low risk ones. So that's how they sort of  
23 take care of that.

24 DR. APOSTOLAKIS: Okay. Understand.

25 MR. SCARBROUGH: And so those are some

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1 areas where that would -- they'd be able to apply this  
2 flexibility and get a lot of gain. But they're still  
3 covered but just less assurance than we have right now  
4 for Appendix B.

5 MR. REED: Okay. Getting on to trying to  
6 identify some of the areas where there's perhaps some  
7 differences or concerns between staff and  
8 stakeholders, and I'm referring to them as early  
9 comments here. I just broke them into what I'll call  
10 areas of concern with the draft rule language and then  
11 some of the areas of concern with the implementation  
12 guidance. And this is, by no means, an exhaustive  
13 list, but it just gives you some of the more big  
14 ticket items that at least I heard yesterday and I've  
15 heard in recent weeks.

16 Certainly, I think you heard that there's  
17 a view that the language that we have in the draft  
18 rule in this RISC-3 treatment area that it may be too  
19 detailed. In fact, perhaps some of that detail ought  
20 to be moved to the Quality Assurance Program, as was  
21 suggested yesterday. That's one area that we need to  
22 work on.

23 There was also a suggestion that we should  
24 probably use what we have available to us in terms of  
25 regulatory vehicles today. We've spent a lot of time

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1 in the last couple years developing design basis 50.2  
2 guidance. We should probably use that. We have a  
3 Commitment Management Guidance document out there, NEI  
4 99-04, that the staff's endorsed. And 50.59's  
5 recently been revised, and there was a suggestion that  
6 that ought to be utilized to the maximum extent in the  
7 framework you heard yesterday.

8 There was also concern that the license  
9 amendment process that we're suggesting -- right now,  
10 if you look in the draft rule language, it requires,  
11 prior to approval, a submittal. It also requires that  
12 to be a 50.90 license amendment. And so there's some  
13 concerns of is that the appropriate way to go about  
14 this? Can we do that without that process? That's  
15 perhaps some burdens associated with the license  
16 amendment.

17 And I think, in general, there were a lot  
18 of comments that would go to this bullet saying that,  
19 basically, we just need more dialogue to understand  
20 what this draft rule language means. I mean I look at  
21 some of it, frankly, and sometimes I'm having a hard  
22 time figuring what it means myself. So, certainly, if  
23 we would have the statement of consideration -- if  
24 this was a proposed rule, we'd have the statement of  
25 consideration to be explaining that, but we don't have

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1 that in this format. We're trying to work with  
2 stakeholders early. We don't have that available to  
3 us, so it's understandable that stakeholders are  
4 looking at the words and don't know what they mean and  
5 there's some concerns there, so we just need more  
6 dialogue.

7 Which leads me to the next piece, which to  
8 get more comfort in the draft rule, we probably need  
9 to have a little bit more comfort in how you're  
10 implementing it. And that leads to the issues in  
11 implementation guidance. Staff has really reviewed  
12 the categorization part of the implementation -- NEI  
13 00-04. We've provided two rounds of comments, and  
14 we're about to provide a third round. So we've done  
15 a pretty good amount of review there on that part of  
16 it.

17 On the treatment end of it, unfortunately,  
18 really they didn't have much treatment in the very,  
19 very early versions, and now, in the most recent  
20 version, if you look at that, it really allows you to  
21 pretty much -- it's not really guidance; it's really  
22 the description of typical processes. It's not  
23 aligned to the way the draft rule is today. I think  
24 it would have to be written more like guidance and be  
25 aligned to our draft rule for us to really provide

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1 constructive comments. So it remains to be seen how  
2 we'll address the treatment portion.

3 In the categorization area, like I said,  
4 we're having another round of comments. I'd just  
5 simply point out, there's a lot more than simply the  
6 long-term containment integrity issue, but that's an  
7 issue that is a big one, I think. But there's many  
8 others that have been identified and also identified  
9 during our observation of the pilot activities. And  
10 we'll roll all those up and get those to NEI in the  
11 near term.

12 Also, I became very well aware yesterday  
13 that this Subcommittee has some significant concerns  
14 on the robustness of the categorization process, and  
15 so we want to meet with the Committee as soon as we  
16 can -- February, hopefully; if not, March -- to get a  
17 list of all those concerns. And, frankly, I would  
18 think at that point in time that it would be a good  
19 idea to have NEI also present and discuss their  
20 document. They are in fact the author of a lot of  
21 that, and they probably would be -- it would be good  
22 to have them here to defend their document, as a  
23 suggestion.

24 DR. APOSTOLAKIS: Now, Mike, do we have to  
25 wait until February?

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1 MR. MARKLEY: It's up to you, whenever you  
2 and the staff and NEI are ready to sit down and talk.

3 DR. APOSTOLAKIS: It has to be in  
4 Subcommittee. We should not transmit any comments

5 MR. MARKLEY: They would be individual  
6 member comments and have to be captioned that way, but  
7 we could do that.

8 MR. REED: I mean I really see the staff  
9 kind of in the mode of listening to the Committee's  
10 comments. And we'd like to get those as soon as we  
11 can to try to factor those into what we're going to do  
12 with the categorization guidance.

13 MS. CARPENTER: This is Cindi Carpenter  
14 from the staff. We're available any time that you are  
15 to discuss that.

16 DR. APOSTOLAKIS: But NEI has to be  
17 available too.

18 MS. CARPENTER: Right. Exactly.

19 MR. REED: Yes. That's another -- got to  
20 work them into it too. We can work with Mike.

21 DR. APOSTOLAKIS: I would rather do it  
22 sooner than later, because the more we wait, the more  
23 resistance there will be to the comments, because the  
24 process advances.

25 MR. MARKLEY: But, George, it would seem

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1 to me it also would be good if the time when you have  
2 it, the staff has refined their comments more fully on  
3 the NEI document as well, so that you're looking at  
4 something they've got, whether it's a response back to  
5 them, and you're dealing with the resolution of those,  
6 as opposed to necessarily just throwing these out to  
7 get folded in.

8 MR. REED: We were thinking that way too,  
9 but I'm not sure how much we'll have refined by early  
10 February. Hopefully, we will, but it's most important  
11 for us to understand these concerns. So I think that  
12 I'd rather have that happen, get the concerns as soon  
13 as possible. And if we can have our comments refined,  
14 we can deliver those too at the same time. Hopefully  
15 we can get those to NEI first as part of the process.

16 DR. APOSTOLAKIS: Well, maybe we can  
17 submit -- first of all, during the Subcommittee  
18 meetings, the comments that members make are  
19 individual; they're not Committee positions anyway.  
20 Maybe send something to them in the form of questions  
21 from individual members? Because I really would hate  
22 to wait until February.

23 MR. KELLY: This is Glenn Kelly from the  
24 staff. And you can correct me, Mike Cheok, if I'm  
25 wrong, but it's my understanding that we're pretty up

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1 to date in categorization with NEI. And we've  
2 certainly had a lot of discussions with them there.  
3 And they reasonably well understand where we are, and  
4 I think we understand where they are. We're not  
5 necessarily in the same place with treatment, so we  
6 can probably come and discuss categorization right  
7 away, and we'd have to wait on treatment. So even if  
8 you could split those two up --

9 DR. APOSTOLAKIS: Oh, yes.

10 MR. KELLY: -- that's fair.

11 MR. MARKLEY: George, maybe the best way  
12 to put this thing together is that if we can refine a  
13 list of questions or something that would be the  
14 context of what's discussed at the Subcommittee, I  
15 think that may be the better way of doing it.

16 DR. APOSTOLAKIS: Sure. I think that's a  
17 good point. So I can invite the members to submit  
18 questions if they wish.

19 MR. MARKLEY: It really just becomes the  
20 agenda for the meeting at that point.

21 DR. APOSTOLAKIS: Yes. And, again, things  
22 that we've covered here, like put more structure to  
23 the deliberations of the panel, we don't have to put  
24 those down. That's part of the transcript now. But  
25 there are some detailed technical questions that I

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1 would really hate to wait until February to give them  
2 to you. So Mr. Markley and the Committee will work  
3 together to come up with the best way to do it.

4 MR. REED: Okay. Actually, I've already  
5 said this, but I'll say it again. On the treatment  
6 portion of the NEI guidance, as I mentioned, it's  
7 really not written in terms of guidance, and obviously  
8 could not have been aligned to the draft rule since  
9 the draft rule just recently came out. So we need to  
10 work with NEI and figure out the most sufficient way  
11 to get that tuned up to fit with the draft rule and be  
12 written as guidance.

13 And I simply point out, and I think the  
14 Committee's well aware of it, but in the RISC-3 area,  
15 I think the key to success of Option 2 is  
16 understanding the details of implementation of RISC-3;  
17 in fact, hopefully getting agreement on that  
18 implementation. That sorts out whether in fact this  
19 is cost beneficial or not for industry to follow it,  
20 and it will be the key factor determining success,  
21 ultimately, of Option 2.

22 MR. ROSEN: What do you define as success  
23 of Option 2?

24 MR. REED: Actually, I define it as  
25 everybody understanding -- personally, I'd like to

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1 have both sides completely understand what's going on,  
2 okay? We need to have regulatory assurance, okay?  
3 That's a given. We need to maintain design basis.  
4 And when we get to the point where we've defined the  
5 minimum level of requirements for RISC-3 that we have  
6 to have, okay, as low as we can, and we understand and  
7 we can transmit to basically deliver the information  
8 in industry, when we expect the means to implement  
9 that, then it becomes a function of what does that  
10 mean in terms of cost and benefit?

11 MR. ROSEN: Well, that's what I think is  
12 the definition of success, is that staff is able to  
13 define a set of requirements that does in fact  
14 maintain design basis functionality.

15 MR. REED: A minimum, yes.

16 MR. ROSEN: And licensees see that as not  
17 so high a barrier to entry that a fairly large  
18 percentage of them choose to adopt Option 2. If you  
19 set a criteria that preserves design basis  
20 functionality and everybody agrees but the licensees  
21 say, "Well, it costs so much, and I wouldn't bother to  
22 change anything," then I would say that's failure.  
23 That's a lot of work for nothing. There's no change.

24 MR. REED: Yes. I mean I have to start  
25 with the prerequisite that I maintain design basis

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1 functions, and there's a minimal set of requirements  
2 to do that. I hope that it works out. That's cost  
3 beneficial. If it's not cost beneficial, then  
4 obviously it's not -- it doesn't behoove anybody to  
5 follow this approach. This is a voluntary initiative,  
6 and staff shouldn't be taking its resources to put  
7 together a voluntary initiative that nobody will  
8 follow. So we're both interested, both industry and  
9 the staff, of what the costs and benefits are. And  
10 the sooner we can get there, I think the better off we  
11 are.

12 And then, quickly, just one slide, George,  
13 on where we're going from here. We're continuing our  
14 efforts to review the NEI implementation guidance, and  
15 in that regard, developing guidance for review of the  
16 submittal, which would look at the categorization  
17 process and the PRA quality issues. We're continuing  
18 to observe pilots. We've observed two pilot plants to  
19 date, two pilot expert panels and two more are coming.

20 DR. APOSTOLAKIS: Yes. Tim, I had a  
21 question on that. Is the purpose of the pilots to  
22 observe the IDPs or to put the whole process under  
23 scrutiny? Because the reports that you got back from  
24 your colleagues, which I must admit I read very  
25 quickly, but the reports that you got back from the

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1 two pilots were primarily dealing with the  
2 deliberations of the panel. Will there be any effort  
3 to see if this is how they did the categorization,  
4 they're calculating Fussell-Vesely correctly? In  
5 other words, the whole works, not just what questions  
6 the panel asks.

7 MR. REED: Well, clearly, the expert  
8 panel, in my mind, is the culmination of the process.  
9 They have all the information delivered to them. For  
10 example, the pilot I was involved with, observing Quad  
11 Cities, Quad Cities, basically, the BWR Owners Group  
12 gave them about a 300-plus page document that did the  
13 categorization, okay? And we got an opportunity to  
14 take a look at that. And then they additionally  
15 provided data sheets and what have you to help the  
16 panel do its job.

17 So, in a sense, you get to -- when you  
18 observe the IDP, you get to see the RAW information in  
19 addition to watching the panel perform. And so it's  
20 a good opportunity to interface with the pilots in an  
21 efficient manner with minimal interruption and still  
22 get an awful lot of feedback.

23 DR. APOSTOLAKIS: But are you going to  
24 question what's in the 350-page input to the panel?

25 MR. KELLY: I can speak about the two that

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1 we already had. Generally, we didn't really get the  
2 information early enough ourselves to be able to do  
3 any kind of independent test. What we did do is, as  
4 Tim mentioned, is to observe the third part of the  
5 categorization process. We did not look at how they  
6 came up with defining the functions for each  
7 component. We did not look at how they did the  
8 Fussell-Vesely or RAW calculations for each component.  
9 Those, given that you have a PRA, are relatively  
10 simple calculations to set up. We were more concerned  
11 about that they had things such as had defined all the  
12 important functions for the components, had considered  
13 potential problems associated with failure of the  
14 components.

15 DR. APOSTOLAKIS: The statements in the  
16 NEI report, though, regarding common cause failures I  
17 must say I don't --

18 MR. KELLY: You have some issues. That's  
19 one of our issues.

20 DR. APOSTOLAKIS: I'd like to see a  
21 natural implementation of this and say, "This is what  
22 we did." For RAW it says -- I believe it says that  
23 you don't need a common cause failure.

24 MR. KELLY: Well, this is one of the --

25 DR. APOSTOLAKIS: It exists for a year,

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1 and I'm trying to understand what that means.

2 MR. KELLY: Well, one of the problems  
3 associated with common cause failure is that I don't  
4 think in either one of the pilots that they understood  
5 what they were doing regarding common cause failure.

6 DR. APOSTOLAKIS: Other than that, did you  
7 like what they did?

8 MR. KELLY: Well, I mean this is one of  
9 our comments. We recognized that they didn't really  
10 understand that. And there were a number of things  
11 that they didn't understand, but this is a learning  
12 process for them also. As we had mentioned at the  
13 Subcommittee, generally they had about six or seven  
14 experts about various parts of the plant, one of which  
15 was generally a PRA expert, and he was generally the  
16 only person that had any clue about really what RAW  
17 and Fussell-Vesely or any of the PRA stuff meant. And  
18 that was a real limitation in how the IDPs were run.  
19 Hopefully, in the future, that part will be -- they'll  
20 be better educated in where the risks are, as defined  
21 by the PRAs and things like that. We did identify  
22 that in our comments that came out of the pilots. I  
23 think Mike has a comment.

24 MR. MARKLEY: I guess, for the record, I  
25 guess it's not that fair to say that they did not

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1 understand common cause failures. I guess the  
2 understanding was different from what the staff would  
3 understand it to be. They, basically, did not account  
4 for the common cause failures in the calculations of  
5 importance measures. The staff position was that we  
6 have to account for it somehow, either through the  
7 random failure probability, such as the beta factors.  
8 We are still in the middle of discussions with NEI on  
9 that.

10 DR. APOSTOLAKIS: I expect that. I didn't  
11 name it that, by the way.

12 (Laughter.)

13 Don't look at me that way. Are you done,  
14 Tim?

15 MR. REED: Just about. Additionally,  
16 we'll continue issuing revisions of the draft rule  
17 language onto the web as they become available. Of  
18 course, we're going to meet with ACRS, as I point out  
19 here, in the February/March time frame, whatever we  
20 work out with Mike Markley. We have to start the  
21 regulatory analysis and of course develop the proposed  
22 rule package, which we've started on now.

23 DR. APOSTOLAKIS: Good.

24 MR. REED: So those are the tasks that we  
25 have to perform. Thanks.

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1 DR. APOSTOLAKIS: Any comments, questions  
2 from the members? Well, thank you very much. And I  
3 must say I'm really happy to see that you're so  
4 willing to ask questions yourselves and learn from  
5 that what the Committee has to offer. That's very  
6 good. That's why I don't want to wait until February  
7 when perhaps you will start being more defensive.

8 (Laughter.)

9 So this is early in the process, and I'm  
10 really very happy to see that you have the right  
11 attitude. So thank you very much, appreciate it. You  
12 responded to the Subcommittee's request very well,  
13 even though you only had a day. So we'll meet again.  
14 And we'll discuss with Mr. Markley what the  
15 appropriate way would be to --

16 MR. ROSEN: Get comments in.

17 DR. APOSTOLAKIS: -- give you comments or  
18 maybe have another Subcommittee soon or somehow  
19 communicate with you.

20 DR. POWERS: If you're looking for input  
21 on that, I really grow nervous when members start  
22 offering comments outside of the normal processes of  
23 these meetings.

24 MR. REED: Maybe we'll have to have a  
25 meeting and round them up at that point.

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1 DR. APOSTOLAKIS: Sure. That's part of  
2 the consideration of whether we send comments. Okay.  
3 Thank you very much. Now we have to work on our  
4 reports. I think we start at 5:30.

5 (Whereupon, at 5:09 p.m., the ACRS  
6 Advisory Committee Meeting was concluded.)  
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Afternoon Session

Docket Number: (Not Applicable)

Location: Rockville, Maryland

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Rebecca Davis  
Official Reporter  
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