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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

(ACRS)

MEETING OF THE SUBCOMMITTEE ON

RELIABILITY AND PROBABILISTIC RISK ASSESSMENT

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THURSDAY,

MARCH 25 , 2004

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ROCKVILLE, MARYLAND

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The Subcommittee met at the Nuclear Regulatory Commission, Two White Flint North, Room T2B3, 11545 Rockville Pike, at 1:00 p.m., Dr. George E. Apostolakis, Chairman, presiding.

COMMITTEE MEMBERS PRESENT:

- GEORGE E. APOSTOLAKIS, Chairman
- MARIO V. BONACA, Member
- F. PETER FORD, Member
- THOMAS S. KRESS, Member
- STEPHEN L. ROSEN, ACRS Member

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1 COMMITTEE MEMBERS PRESENT (Continued):

2 WILLIAM J. SHACK, Member

3 JOHN D. SIEBER, Member

4 MICHAEL SNODDERLY, ACRS Staff

5 NRC STAFF PRESENT:

6 STEPHEN DINSMORE

7 MARY DROUIN

8 DONALD HARRISON

9 BILL KEMPER

10 STU MAGRUDER

11 GARETH PARRY

12 MARK REINHART

13 MARK RUBIN

14 BOB TJADER

15 MIKE TSCHILTZ

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C O N T E N T S

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Draft Action Plan for Implementation of

Phased Approach to PRA Quality:

Gareth Parry, NRR	6
Mary Drouin	114
Commission Discussion	149

P R O C E E D I N G S

(1:15 p.m.)

CHAIRMAN APOSTOLAKIS: The meeting will now come to order.

This is a meeting of the Advisory Committee on Reactor Safeguards, Subcommittee on Reliability and Probabilistic Risk Assessment.

I'm George Apostolakis, Chairman of the Subcommittee. Members in attendance are Mario Bonaca, Peter Ford, Thomas Kress and Steve Rosen and Jack Sieber.

The purpose of this meeting is to discuss the NRC staff's implementation plan in response to the Commission's policy statement endorsing a phased approach to PRA quality. The Subcommittee will gather information, analyze relevant issues and facts, and formulate proposed positions and actions as appropriate for deliberation by the full committee.

Mike Snodderly is the Designated Federal Official of this meeting.

The rules for participation in today's meeting have been announced as part of the notice of this meeting published in the Federal Register on February 27, 2004.

A transcript of the meeting is being kept

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1 and will be made available as stated in the Federal
2 Register notice.

3 It is requested that speakers first
4 identify themselves and speak with sufficient clarity
5 and volume so that they can be readily heard.

6 We have received no written comments or
7 requests for time to make oral statements from members
8 of the public regarding today's meeting.

9 As you know, in a staff requirements
10 memorandum, dated December 18, 2003, the Commission
11 approved implementation of a phased approach to
12 achieving an appropriate quality for PRAs for NRC's
13 risk informed regulatory decision making.

14 The SRM requested an action plan that
15 defines a practical strategy for the implementation of
16 the phased approach to PRA quality. I understand the
17 NRC staff held a public meeting on February 24, 2004,
18 to present their views and their understanding of the
19 phased approach and solicit feedback from
20 stakeholders.

21 The action plan in response to the
22 Commission's December 18 SRM is due to the Commission
23 in July 2004. The full committee, the full ACRS will
24 review and comment upon the draft action plan at its
25 April meeting, and of course the subcommittee is

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1 expected to make a recommendation to the full
2 committee concerning this matter.

3 We will now proceed with the meeting, and
4 I call upon Gareth Parry of the Office of Nuclear
5 Reactor Regulation to begin the proceedings.

6 MR. PARRY: Good afternoon. Here at the
7 table with me is Mary Drouin from the Office of
8 Research, Donald Harrison and Stuart Magruder from
9 NRR, and at the side table is Mike Tschiltz, the PRA
10 Branch Chief in DSSA and NRR.

11 We form collectively the small group that
12 has been working on the drafting of this plan.

13 As George said, the purpose of this
14 meeting is to prevent -- present -- I said "prevent"
15 yesterday, too.

16 (Laughter.)

17 DR. KRESS: Freudian slip?

18 MR. PARRY: It's got to be.

19 -- is to present the draft action plan for
20 response to the SRM on stabilizing the PRA quality
21 expectations and requirements and to solicit your
22 input, as if we needed to solicit it.

23 (Laughter.)

24 MR. PARRY: The outline of the
25 presentation is as follows. I'll go briefly through

1 the background and objectives, both what we think the
2 Commission's objectives are and what the objectives of
3 the plan are.

4 I'll spend a little bit of time on the
5 definition of the phases, and we'll probably spend
6 quite a lot of time on the two viewgraphs that we have
7 in which we interpret how this phased approach is
8 going to be implemented when it comes to decision
9 making.

10 Incidentally, we had a public meeting
11 yesterday afternoon at which essentially these same
12 viewgraphs were presented, and we had a lot of
13 discussion on those charts at that point, too.

14 Then I will outline the staff and the
15 industry activities that are needed to achieve the
16 phased approaches. So a little briefly about the
17 resolution of technical issues, which is also
18 something that was called out in the SRM.

19 We have identified two potential policy
20 issues. They may not end up being policy issues, but
21 they're issues that we have identified amongst
22 ourselves as ones that we're not sure which way we
23 should go yet.

24 And then I'll talk a little bit about the
25 schedule.

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1 I'll start, first of all, by just making
2 a general comment on PRA quality. There's definitely
3 ambiguity about the meaning of the term "PRA quality,"
4 and what I heard this morning didn't disabuse me of
5 that.

6 We have been trying very hard to get away
7 from the phrase "a quality PRA" or "a high quality
8 PRA" by relating quality to the requirements for a
9 specific application. So we want to say things like
10 the PRA is of sufficient quality to support an
11 application.

12 DR. ROSEN: Why don't you call it
13 "suitable"?

14 MR. PARRY: Excuse me?

15 DR. ROSEN: Why don't you call it
16 "suitable"? "Suitable PRA."

17 MR. PARRY: Suitable PRA.

18 DR. ROSEN: It suits the purposes for
19 which it's intended. What I'm really suggesting is
20 you get away from it. Find another term; engineer
21 another term.

22 CHAIRMAN APOSTOLAKIS: PRA suitability.

23 DR. ROSEN: Yeah.

24 MR. PARRY: Okay. Well, we can think
25 about that.

1 DR. ROSEN: Think about it. I mean,
2 that's just the top of my head, but I think I
3 understand your problem with those words, and I think
4 I know what you were trying to do. So if you thought
5 about it a while, I think you would come up with a
6 better set of words.

7 DR. KRESS: It's too late. Everybody has
8 quality on their mine.

9 MR. PARRY: They do, I know, and the SRM
10 is written in that was, too.

11 DR. ROSEN: Well, you make the point
12 though well. I think you're convincing that it's the
13 wrong term. It makes it very hard.

14 CHAIRMAN APOSTOLAKIS: Let's give Gareth
15 five minutes.

16 DR. ROSEN: Oh, Chair.

17 CHAIRMAN APOSTOLAKIS: I mean that,
18 please.

19 (Laughter.)

20 DR. ROSEN: As soon as you do, I will.

21 PARTICIPANT: Why don't you go with his
22 conclusions first?

23 CHAIRMAN APOSTOLAKIS: Give your
24 conclusions first.

25 MR. PARRY: Well, we don't really have any

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1 conclusions.

2 CHAIRMAN APOSTOLAKIS: You don't have any.

3 MR. PARRY: Because what we're going to do
4 is present what we think the --

5 CHAIRMAN APOSTOLAKIS: So you don't really
6 need five minutes. Okay.

7 MR. PARRY: No, no, I do. I'll take that,
8 too.

9 In any case, as far as quality as it
10 relates to PRAs goes, the way we've defined it is the
11 same definition that you find in Reg. Guide 1.174 and
12 in 1.200, and we've specifically identified scope as
13 being one of the elements of quality, if you like, and
14 level of detail and technical acceptability.

15 And you remember in Reg. Guide 1.174 we
16 used to have a section that used to be called PRA
17 quality. I think it has been changed now to address
18 these things like scope, level of detail, and
19 technical acceptability.

20 And the concept here is that certainly the
21 greater the emphasis on risk insights in any
22 application, the more stringent the requirements on
23 the PRA will be.

24 DR. FORD: Uncertainty doesn't come into
25 this at all?

1 MR. PARRY: Not at that level, no.

2 CHAIRMAN APOSTOLAKIS: It's the technical
3 acceptability, I suppose.

4 MR. PARRY: Yeah, it's buried in there, and
5 it's buried also in the decision making, but that's
6 where it belongs.

7 CHAIRMAN APOSTOLAKIS: I think it's under
8 technical acceptability.

9 MR. PARRY: It really is because otherwise
10 you could also ask the question are initiating events
11 in there. It's just another part of the PRA that we
12 need to address.

13 The purpose of the SRM. We think the
14 Commission's objectives in writing this SRM, there are
15 many of them, and they are scattered throughout both
16 through the SRM and the white paper that was attached
17 to it.

18 But basically I think what they're trying
19 to do, what they are trying to do is to increase the
20 use of risk insights through the use of -- and using
21 their words now -- high quality, more complete PRAs as
22 a means of enhancing safety.

23 And an additional thing is to provide a
24 pathway for predictability in the use of PRAs by
25 establishing clear expectations on PRA quality.

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1 The big strength of this SRM, I think, is
2 it facilitates near term progress and enhancement of
3 safety through the use of available methods while also
4 building the pathway to getting better and better
5 methods and more broad reaching applications.

6 One of the things that the Commission is
7 concerned about is trying to create an atmosphere
8 where we can be more efficient in our review of risk
9 informed applications, and we're going to strive for
10 increased effectiveness in the use of PRAs in the
11 longer term.

12 So in a general high level sense, those
13 are the Commission's objectives.

14 What the SRM has done is to propose a
15 phased approach to achieving the appropriate quality,
16 which is really the vehicle by which we can make
17 short-term progress but develop towards the more
18 complete PRAs.

19 I talked about my second bullet while
20 explaining the first. That's what the approach in the
21 SRM is, is to have this phased approach, and what it
22 directs us to do is to develop an action plan for a
23 practical strategy for implementation of this phased
24 approach.

25 An additional topic in the SRM is that we

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1 should address the resolution of certain technical
2 issues, and I think you guys are, in large part
3 responsible for having these in there, the issues such
4 as model uncertainty, dealing with seismic and other
5 external events, and of course, particularly human
6 performance issues, and we had at least a couple of
7 those this morning.

8 And we'll address a little bit on that,
9 although I think our focus today is really on the
10 action plan for the implementation of the phased
11 approach, and --

12 CHAIRMAN APOSTOLAKIS: Are you working
13 with the industry at all on this or are you
14 coordinating anything with the industry, or is it
15 strictly NRC staff?

16 MR. PARRY: We've had two public meetings
17 with the industry where we've shared our thoughts on
18 this and got feedback from them, which is --

19 CHAIRMAN APOSTOLAKIS: Mr. Gaertner this
20 morning said that EPRI's creating or already has
21 created a project to address the issue of model
22 uncertainty.

23 MS. DROUIN: George, I think there's a
24 misunderstanding. The two public meetings have been
25 on the action plan.

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1 CHAIRMAN APOSTOLAKIS: Yes.

2 MS. DROUIN: We have not had any public
3 meetings on these technical issues, and plan to.

4 CHAIRMAN APOSTOLAKIS: But you also told
5 us, Mary, some time ago that you are preparing
6 regulatory guide on this issue.

7 MS. DROUIN: We told you that we were
8 going to prepare something. It would not be in
9 Regulatory Guide 1.200. It would be in some other
10 form.

11 CHAIRMAN APOSTOLAKIS: Okay, but you are
12 still working on that?

13 MS. DROUIN: Yes.

14 MR. PARRY: We'll talk about that a little
15 later.

16 CHAIRMAN APOSTOLAKIS: And this effort is
17 not coordinated with that of EPRI at this time.

18 MS. DROUIN: Yes and no.

19 CHAIRMAN APOSTOLAKIS: Okay. That's a
20 definitive answer. If you come back to it later --

21 MS. DROUIN: When we come back to it, I'll
22 explain a little bit more then.

23 MR. BRADLEY: This is Biff Bradley of NEI.

24 We did broach this here yesterday in the
25 public meeting because the industry has a number of

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1 activities underway, and we did want to coordinate
2 with NRC, and we did raise this yesterday, and I think
3 the answer we got is that was a reasonable thing to
4 try to do.

5 CHAIRMAN APOSTOLAKIS: Very good, but we
6 will come back to it.

7 MR. PARRY: Yes, although we'll come back
8 to it really briefly because the focus today is really
9 on the phased approach and the implementation.

10 CHAIRMAN APOSTOLAKIS: I can see technical
11 issues associated with model uncertainty and human
12 performance issues. I thought the technical issues on
13 the seismic area had been resolved.

14 Are you referring to standards?

15 MR. PARRY: Yes and no. I mean, standards
16 for PRAs, but also bounding methods if you don't use
17 PRAs.

18 CHAIRMAN APOSTOLAKIS: Yeah, but I mean,
19 SMA and seismic margins.

20 MR. PARRY: Well, more like quantitative
21 bounding methods, I think, because you'll see as we
22 talk later on in what context this might become
23 important.

24 MS. DROUIN: And any technical issues that
25 would come out of the external events, our intent is

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1 to handle it through the standard now that the
2 standard is out and we review it. You know, any
3 issues would come out through, you know, the
4 endorsement.

5 CHAIRMAN APOSTOLAKIS: When you say the
6 standard is out, has it been approved?

7 MS. DROUIN: We are currently reviewing
8 it.

9 CHAIRMAN APOSTOLAKIS: Reviewing it.

10 MR. PARRY: Okay. The status of the
11 activities --

12 CHAIRMAN APOSTOLAKIS: Hold it. You
13 didn't --

14 MR. PARRY: Okay.

15 CHAIRMAN APOSTOLAKIS: Back, back. All
16 modes of operation, is that somewhere in there?

17 MR. PARRY: Yeah. You'll see that it is.

18 CHAIRMAN APOSTOLAKIS: Everything is in
19 the future here, isn't it? Very good.

20 DR. SIEBER: You didn't say yes and no.

21 (Laughter.)

22 MR. PARRY: Be patient.

23 DR. ROSEN: It's not our long suit,
24 Gareth.

25 MR. PARRY: I know that.

1 (Laughter.)

2 CHAIRMAN APOSTOLAKIS: You don't need to
3 comment on everything we say.

4 MR. PARRY: Okay. The status of this plan
5 at the moment is, as I told you, the working group is
6 here. We made the draft plan available on 3/15, and
7 you got copies of it, and also it was made publicly
8 available, and that's what we discussed yesterday at
9 the public meeting.

10 So we're in the process of soliciting --

11 CHAIRMAN APOSTOLAKIS: So this is the
12 group.

13 MR. PARRY: With Mike, yeah.

14 CHAIRMAN APOSTOLAKIS: Okay.

15 MR. PARRY: So we're in the process of
16 soliciting input from stakeholders, both internal and
17 external. We're going to have several internal
18 meetings as well, and we're trying to finalize the --
19 well, we will finalize the plan for transmission to
20 the Commission in July this year.

21 So what I'd like to do now is to go
22 through the definition of the phased approach, and
23 tell you what the different phases are, and the things
24 that I want to focus on really are things like what
25 scope the PRA has to have and also what quality it has

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1 to have for the various phases, but also what level of
2 staff review is associated with being in the different
3 phases.

4 CHAIRMAN APOSTOLAKIS: So what
5 distinguishes the phases is strictly the availability
6 of standards and guidance documents; is that correct?

7 MR. PARRY: Of guidance documents
8 generally, yes. It's not just standards. Guidance
9 documents for performing the application, such as Reg.
10 Guide 1.177, for example, and also guidance documents
11 that enable us to assess the quality that's
12 appropriate for those applications.

13 I think the guidance document for the
14 application also has to specify the appropriate
15 quality for the PRA.

16 DR. ROSEN: Now, is it the staff's intent
17 or desire to move through the phases in some sort of
18 orderly manner? In other words, to get ultimately to
19 the higher numbered phases?

20 MR. PARRY: What the Commission directs us
21 to is to progress towards Phase 3, and I will discuss
22 what that means, and ultimately perhaps to a Phase 4,
23 but the Commission recognizes that going to Phase 4 is
24 extremely resource intensive both on the part of the
25 industry and on the part of the staff.

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1 DR. ROSEN: So what that says is that this
2 desire to move forward through the phases depends on
3 the availability of these guidance documents, either
4 standard or industry guidance documents or regulatory
5 guides.

6 So let me posit for you a potential and
7 ask you how you would deal with it. What if, for
8 example, just random, the industry which is known to
9 be working on low power shutdown standards under A&S,
10 what if, for example, the industry were to decide,
11 well, it's too much work and we really don't want to
12 do that? Does that mean that one would not be able to
13 move forward in that area because there was no
14 standard available?

15 MR. PARRY: Well, can I answer that
16 question by talking you through the phases? Because
17 I think it's not a -- you can move through the phases
18 for some applications and not for others, is what it
19 really means. For those applications that would
20 require a low power shutdown element of risk to be
21 calculated, if we did not have the standard, we
22 couldn't move forward to Phase 2, except under certain
23 circumstances, which I will explain to you.

24 DR. ROSEN: Okay, and staying with that
25 example for a moment more, if you didn't have such a

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1 standard and there was some need expressed in the
2 industry to do something in a risk informed way with
3 either low power or shutdown affected systems, then
4 would the staff just say, "Well, that's too bad," or
5 would you work independently on a regulatory guide?

6 Is there a way around this?

7 MR. PARRY: Again, you're getting ahead of
8 the presentation, and we will discuss all of these
9 issues. Okay? It's the easiest way to do it. When
10 I get to that part, it is probably the easiest way to
11 explain.

12 DR. ROSEN: Well, I'm just wondering who's
13 in charge here. I mean, if you say it's standards,
14 then it's the industry and the community at large, and
15 a little bit that worries me because the regulatory
16 responsibilities is focused here, not in the industry.

17 MR. PARRY: Right.

18 DR. ROSEN: If the staff believes it needs
19 to move PRA ahead if it needs some sort of consensus
20 standard it's transferred responsibility to the
21 industry, unless you have a work-around, and I hope
22 you do.

23 MS. DROUIN: The staff could always come
24 at any point and elect, you know, say there is some
25 place where there is a need for a standard and if

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1 industry -- I hate to use the word "industry" because
2 it's not industry that develops it.

3 DR. ROSEN: It's stakeholders.

4 MS. DROUIN: Standards, the FDOs, but
5 anyway, if they elect not to do it, you know, the
6 staff, I mean, the Commission can always come in and
7 direct the staff to do it.

8 This to me in my mind becomes a policy
9 issue. If there is going to be a hole there and that
10 hole is needed in order to move forward, then that's
11 going to have to go up to the Commission and say what
12 do we do. Do we develop it ourselves in the form of
13 a regulatory guide or a NUREG?

14 DR. BONACA: Why necessarily the staff?
15 I mean, you could always say we cannot approve this
16 application because there is no basis for us to judge.
17 Therefore, go ahead and do --

18 MS. DROUIN: You can do that way also.
19 There's different options.

20 DR. BONACA: I think that, you know, this
21 is a mode in which there hasn't been necessarily the
22 burden on the staff to produce everything.

23 MS. DROUIN: That's right.

24 MR. TSCHILTZ: If I could comment on this,
25 this is Mike Tschiltz.

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1 I'd just like to say that I think the
2 premise of the plan right now as we envision it is
3 that it's dependent upon the industry being involved
4 in these activities, and that if they aren't, we
5 seriously need to rethink how the plan is going to
6 work because it's based upon the premise that the
7 industry is going to be involved in development of
8 these standards.

9 DR. BONACA: I think that's exactly right.

10 MR. SNODDERLY: Steve, the other thing,
11 the short answer to your question is you would be in
12 Phase 1 if the standard is not developed for low power
13 shutdown, and Gareth is going to then take you through
14 what Phase 1 is and what that means.

15 MR. PARRY: Yeah, in addition to the
16 technical guidance documents, as we call them, we also
17 will have to revisit our internal documents like
18 office instructions to enable us to deal with licensee
19 submittals in an appropriate manner, like, you know,
20 deciding what the right priority for review is, things
21 like that.

22 Okay. Phase 1, that's where we're at
23 right now, and PRA quality generally. I mean, any of
24 the current regulatory guides for a specific
25 application, it's like Reg. Guide 1.174 or 175. They

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1 all have in them statements that the PRA quality has
2 to be commensurate with the needs of the application.

3 And the way that is judged is really --
4 the way the quality of the PRA is judged is almost
5 entirely -- well, entirely in the context of what's
6 needed for the application, and there really is no
7 requirement for a review of the base PRA. It's really
8 left up to the reviewers to decide on the things that
9 they need to look at to determine whether the
10 application is acceptable.

11 You could look at the SRP Chapter 19, for
12 example. There's a lot of discussion of what you look
13 at to look at the change in CDF or LERF. It really
14 doesn't deal very much with the base PRA. It focuses
15 more on the change, and that's largely because of the
16 structure of the acceptance guidelines that we used in
17 Reg. Guide 1.174.

18 But one specific thing that, again, these
19 guidance documents say is that all of it contributes
20 to risk, and when I talk about a contributor to risk
21 here in the context today, I'm talking about the mode
22 of operation, and I'm talking about whether it's an
23 internal or external initiating event.

24 So I might talk about contributors as
25 being the sum of all internal initiating events

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1 perhaps. Another one might be seismic contribution.
2 Another one might be fire. Another one might be high
3 winds.

4 So when I talk about a contributor to risk
5 in the context that I'm talking today, I'm talking
6 about the big contributors, the pieces for which you
7 would perhaps do a separate PRA, for example, or a
8 separate analysis.

9 And all of these have to be addressed, but
10 typically since most licensees do not have a PRA that
11 covers all of the contributors, these early guidance
12 documents do allow the use of alternate methods to
13 deal with the out-of-scope items, and they could be
14 the methods that have been used, the qualitative
15 arguments with perhaps compensatory measures, you
16 know, that can be argued to say the risk from this
17 contributor is not going to change because we have
18 these compensatory measures in place.

19 We might use bounding analyses to show
20 that something is not particularly important or even
21 just to feed into the calculation as a conservative
22 estimate of the change that we allow.

23 And another way is to just restrict the
24 scope of the application. So that's Phase 1.

25 Phase 2 is described as -- the words the

1 SRM uses, an issue specific approach to PRA quality,
2 but we used the term "application type" approach, and
3 an application type might be something like ISI, IST.

4 CHAIRMAN APOSTOLAKIS: That's exactly what
5 confuses me. I thought in Phase 1, you said that we
6 were in Phase 1 right now.

7 MR. PARRY: We currently are in Phase 1,
8 right.

9 CHAIRMAN APOSTOLAKIS: And yet we are
10 approving risk informed ISI and all of that. So
11 what's the difference within Phase 1 and Phase 2 in
12 this respect?

13 MR. PARRY: Let me go through it. It's
14 what will happen in the future.

15 Okay. The difference is -- well, there's
16 two differences. The first one is that the PRA
17 quality now is demonstrated by comparison with an
18 applicable consensus standard for those elements that
19 are required for the application. So this is a
20 confidence building step in the process because now we
21 can assess the quality of the PRA by looking at
22 consensus standards.

23 Therefore, we have more confidence that
24 the PRA is adequate.

25 CHAIRMAN APOSTOLAKIS: Well, that's not a

1 difference because we already do that.

2 MR. PARRY: No, we don't already do that,
3 and staff --

4 CHAIRMAN APOSTOLAKIS: ASME?

5 MR. PARRY: We've only just approved Reg.
6 Guide 1.200 for trial use last month. When we've
7 completed that --

8 CHAIRMAN APOSTOLAKIS: But the ASME
9 standard?

10 MR. PARRY: But it had to be approved
11 through the reg. guide. That's when -- when we're
12 applying that, we have these pilot applications which
13 will test that regulatory guide, and when we've
14 completed that, then we will have a tool that we can
15 have confidence in the quality of the PRA.

16 CHAIRMAN APOSTOLAKIS: Again, still, how
17 many units in the country have implemented risk
18 informed ISI? Just about all of them.

19 MR. PARRY: Seventy-something, right.

20 CHAIRMAN APOSTOLAKIS: So you're saying
21 that we have approved something that has been
22 implemented by 77 out of 102, three units.

23 MR. PARRY: Right.

24 CHAIRMAN APOSTOLAKIS: Without high
25 confidence?

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1 MR. PARRY: Well, I don't say without high
2 confidence. Without the demonstrable documentation of
3 that quality. This is a --

4 CHAIRMAN APOSTOLAKIS: Well, these PRAs,
5 I think all of them --

6 MR. PARRY: They've been reviewed.

7 CHAIRMAN APOSTOLAKIS: -- have gone
8 through the NEI process, right? The review process.

9 MR. PARRY: That's the situation, George.

10 CHAIRMAN APOSTOLAKIS: Yeah.

11 DR. SIEBER: I don't think that's
12 unreasonable, you know. Applying risk information to
13 in-service inspection is better than applying no
14 information to it, and so you've got to improve the
15 process by risk informing ISI.

16 CHAIRMAN APOSTOLAKIS: Even though you
17 don't have high confidence.

18 MR. PARRY: You might have confidence.
19 It's just that it's -- okay. Let's not --

20 CHAIRMAN APOSTOLAKIS: Streamlines. This
21 streamlines it.

22 MR. PARRY: Yes, it does streamline it.
23 Let's not focus on that specific item. Look at the
24 next one. Okay? This is another difference, is that
25 now in Phase 2 what we're saying is that all

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1 contributors to risk -- sorry. This is still the same
2 -- all contributors to risk have to be addressed.
3 That hasn't changed, but it's the next bullet.

4 All significant risk contributors
5 applicable to the issue are actually included in the
6 PRA scope.

7 Currently with the Phase 1, we're allowing
8 other methods to be used than PRA, even for
9 significant contributors.

10 CHAIRMAN APOSTOLAKIS: Oh, the
11 "significant" refers to the total PRA.

12 MR. PARRY: Right, and the significance of
13 the contributor means that if you take it into
14 consideration --

15 DR. SIEBER: What force and risk is this?

16 MR. PARRY: Yeah, if you take it into
17 consideration, it could change the decision
18 substantially. Those are the words that are in the
19 white paper. Okay?

20 We have to define those words in a
21 practical sense, but those are the words in the white
22 paper.

23 CHAIRMAN APOSTOLAKIS: For a risk
24 contributor to be significant, it must have been
25 quantified. So are you saying now that you have to

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1 quantify everything?

2 That's what you say on the third bullet,
3 I guess.

4 MR. PARRY: That's what the third bullet
5 says.

6 MR. HARRISON: Or you have to have some
7 type of screening approach that gives you an estimate.

8 MR. PARRY: Right.

9 CHAIRMAN APOSTOLAKIS: So this is a major
10 change now, is it not?

11 MR. PARRY: This is a change. This is a
12 considerable change, yes.

13 CHAIRMAN APOSTOLAKIS: This is a
14 considerable change when it comes to scope. There is
15 no more, oh, we don't quantify this because it's, you
16 know, I'm waiting. This is a very important change.

17 MR. PARRY: And this, I think, is what the
18 Commission is after, is to try and push people in that
19 direction.

20 MR. TSCHILTZ: The concept is that once
21 the guidance and the standards exist to move people to
22 the next level by the phased approach to PRA quality
23 and to do what is acceptable or what you've proven to
24 be acceptable in Phase 1, which is the risk informed
25 ISI, we don't think we've made any inappropriate

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1 decisions based upon the information we have, and we
2 don't think Phase 2 is going to change that.

3 But it is progressing. It's a
4 bootstrapping approach to progressing the technology.

5 MR. MAGRUDER: And improving efficiencies,
6 staff efficiencies.

7 MR. PARRY: Yes. So to achieve this Phase
8 2 then --

9 CHAIRMAN APOSTOLAKIS: Well, wait. Let's
10 go back. I thought significant contributors were what
11 you and I understand, you know, have been
12 understanding for 20 years now. Whatever significant
13 is, ah, fire, risk, fire, seismic.

14 MR. PARRY: Right, exactly.

15 CHAIRMAN APOSTOLAKIS: Look at the last
16 bullet though. It says the significance of a
17 container is done by whether taking into account will
18 change the decision. That's a very different
19 definition of significance.

20 MR. PARRY: Well, yes, but remember Phase
21 2 is application type specific. Okay? So for a
22 particular application, something might contribute
23 considerably to the core damage frequency, like fires
24 may contribute significantly to the core damage
25 frequency, but if they're not relevant for a specific

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1 application, then you don't need a fire --

2 PARTICIPANT: Like ISI.

3 MR. PARRY: Like ISI, right.

4 You wouldn't need a fire PI.

5 MR. MAGRUDER: Maybe we should change it.

6 In that last bullet instead of saying "significance,"
7 maybe we should say "the relevance of the
8 contributor."

9 MR. PARRY: Well, except we're parroting
10 the words from the SRM though.

11 MR. MAGRUDER: Right, but when it's a
12 different meaning than significant in the strict PRA
13 sense.

14 MR. PARRY: Well, maybe not. I mean, for
15 a particular application it still has the same
16 connotation.

17 MR. MAGRUDER: Yes.

18 MR. SNODDERLY: I think it's important
19 because it's where the Commission was trying to define
20 what "significant" meant.

21 MR. PARRY: Right, and I think what they
22 were trying to address here, I believe, was the scope
23 issue.

24 CHAIRMAN APOSTOLAKIS: But somehow
25 somebody has to make a judgment before the PRA that

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1 something will change the decision.

2 MR. PARRY: Yes.

3 CHAIRMAN APOSTOLAKIS: And how do we do
4 that?

5 MR. PARRY: Well, I'll talk about that in
6 a minute.

7 MR. SNODDERLY: A judgment that becomes
8 apparent when you have a standard, but without the
9 standard, then it becomes much tougher on these guys.

10 MR. PARRY: Make a note to yourself that
11 you want that question answered because I will come
12 back to it. Okay?

13 In Phase 2 then what we've got to have is
14 the guidance for using the PRA in making the decision,
15 and what that guidance has to do, I think, is include
16 the definition of the scope of the PRA that you need.
17 So that will tell you in that guidance -- well,
18 actually I can answer your question now.

19 We think probably what will happen is that
20 in terms of if we are at regulatory guides, for
21 example, that we would write a regulatory guide in a
22 generic sense that would say typically you would
23 expect that for this type of application that you need
24 to consider internal events and fires, but maybe not
25 seismic. Okay? Maybe not low power shutdown.

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1 When we talk about the implementation
2 later on, that doesn't mean that every licensee would
3 have to do a fire PRA, but the only ones that would
4 not have to do it would be those that could
5 demonstrate that for their plant and for their
6 application that the fire contribution was
7 insignificant to the decision.

8 CHAIRMAN APOSTOLAKIS: So the burden is on
9 the licensee --

10 MR. PARRY: To demonstrate the
11 significance.

12 CHAIRMAN APOSTOLAKIS: -- to show that
13 something is not relevant to the decision.

14 MR. PARRY: Yeah, given that the generic
15 guidance suggests that it is.

16 CHAIRMAN APOSTOLAKIS: That's reasonable.

17 MR. PARRY: And then the other portion of
18 the guidance is that the assessment of the quality of
19 the PRA for each scope item that's going to be used in
20 the application has to exist, and where it will exist
21 from our point of view is in Reg. Guide 1.200 as an
22 endorsement of the relevant standards for those scope
23 items.

24 CHAIRMAN APOSTOLAKIS: What is the trial
25 period then being on this?

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1 MR. PARRY: I think it's about a year,
2 right, Donny?

3 MR. HARRISON: Yeah. Right now it would
4 project to be about December of this year would be
5 when we'd finish the trial period for Reg. Guide
6 1.200, for the internal events. So it's this year.

7 CHAIRMAN APOSTOLAKIS: The end of this
8 year?

9 MR. HARRISON: End of this year, yeah.

10 MR. SNODDERLY: George, right now Donny is
11 scheduled to come -- not Donny but someone -- a group
12 will be coming before us at the May full committee to
13 brief us, an information briefing, on the status of
14 the pilot reviews.

15 CHAIRMAN APOSTOLAKIS: Very good.

16 MR. PARRY: Actually it will be Donny.

17 Okay. Let's move on to Phase 3 then.
18 Phase 3 is one in which we believe that the regulatory
19 framework is in place that would enable a licensee to
20 construct a PRA that would have sufficient quality to
21 address all the current applications. It would be
22 like a rolling up of all the quality requirements for
23 all of those applications into one umbrella type
24 document.

25 So that's what we see Phase 3 as being,

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1 and this is the phase that the SRM directed us to
2 achieve by December 31st, 2008.

3 CHAIRMAN APOSTOLAKIS: Yeah, Phase 2
4 actually the SRM says "in the short term."

5 MR. PARRY: "In the short term," right.

6 CHAIRMAN APOSTOLAKIS: Now, what is the
7 definition of a "short term"? Something that's not
8 long?

9 MR. PARRY: Yes, you could say that, but
10 I think it's determined really by practicality because
11 it's dependent on when the standards will be issued
12 and when they will be endorsed by the NRC, and as you
13 know, the standards for low power shutdown and fires
14 are somewhere out in the future. they're not this
15 year. they're next year at the earliest.

16 So that has to define the short term.

17 CHAIRMAN APOSTOLAKIS: So Phase --

18 MR. PARRY: Plus some applications.

19 CHAIRMAN APOSTOLAKIS: Phase 2 then
20 optimistically will not be in place before the year
21 2007?

22 MR. PARRY: No, we may have a Phase 2. We
23 think Phase 2 is an application specific state. So
24 for some applications we may be in a Phase 2 earlier
25 than that, and we have a good example of that which

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1 we'll talk about in a minute.

2 It's actually an interesting example
3 because it's an example of an application which could
4 be in different phases at different times.

5 CHAIRMAN APOSTOLAKIS: But by December
6 31st, 2008?

7 MR. PARRY: We will roll up all that we
8 have.

9 CHAIRMAN APOSTOLAKIS: Will that be Phase
10 3 or any application now is a good PRA?

11 MR. PARRY: That's the goal, given that
12 the standards that are out there to be constructed
13 should be enough to support the applications that we
14 currently think of.

15 CHAIRMAN APOSTOLAKIS: But isn't the
16 Commission saying by this deadline that the standards
17 have been ready? I don't recall the Commission
18 putting a condition.

19 MR. PARRY: No, they haven't, but they
20 knew when the standards were due to be published. So
21 I think the reason they chose 2008 was probably in
22 recognition of the fact that those standards were not
23 going to be ready immediately.

24 I'm sure they built that into their
25 considerations.

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1 MR. SNODDERLY: George, also recall there
2 was a joint letter from ANS and ASME that said that
3 they thought that this was an ambitious schedule.

4 MR. PARRY: They did, but they also, I
5 think, put a couple of red herrings in there because
6 they talked about a full Level 2 and a Level 3
7 standard, and currently the acceptance items we use
8 for most of our applications currently don't really
9 need those.

10 So I don't know if that's what they were
11 referring to as the ambitious part of it or the other
12 standard.

13 They also did mention the development of
14 standards does take a long time, and even though we
15 started the internal events six years ago, something
16 like that, where really only now beginning to
17 implement them, and even as we speak they're being
18 modified.

19 DR. FORD: In order to meeting that
20 schedule of December 31st, 2008, you're going to need
21 larger interactions between the Standardization Board,
22 the licensees and NRC, and those are all conjoint
23 requirements, those interactions.

24 MR. PARRY: Right.

25 DR. FORD: What is the rate limiting step?

1 What is the thing that could stop you?

2 MR. PARRY: Well, that could stop us?
3 There's two parts to that question, I think. We
4 could, as an agency define the regulatory framework,
5 and that thing that would stop us there would be
6 actually, I think, would be the standards.

7 But in terms of full implementation of
8 Phase 3, I think what could stop us is the ability of
9 the industry to have enough resources to develop the
10 PRAs to the standards and to have them peer reviewed
11 because the peer review is also an essential part of
12 any of these standards.

13 DR. FORD: Now, why would it be the --
14 we're starting to get into an area which, I guess, is
15 more of a business aspect, but surely the licensees
16 based on what we saw from SDP this morning, there's a
17 huge business advantage to them to develop this. So
18 why should it be the licensees pushing you rather than
19 you pushing them?

20 MR. PARRY: I cannot really answer that.

21 MR. TSCHILTZ: I can say I don't think
22 that South Texas' viewpoint is commonly shared across
23 the industry about the use of PRA.

24 MR. PARRY: Or the economic benefit
25 really.

1 MR. SNODDERLY: Gareth, could you share
2 with the Subcommittee, because I thought you had some
3 good thoughts, on what do you think would be the
4 drivers for getting to Phase 3?

5 MR. PARRY: Well, I think one of the
6 drivers could be 5069 if there were to be seen a good
7 economic benefit for reducing the special treatment of
8 primers (phonetic), for example. And I'll explain why
9 we might think that might be the case when we talk a
10 little later because I have 5069 as an example a
11 little later, and I think it's probably better to talk
12 about it then.

13 But another area that you might think that
14 could be of benefit, although I'm not really sure; I'm
15 not sure whether this is real or not, but when you're
16 talking about the SDP, for example, a lot of the
17 problems we get into when a preliminary Phase 2 of the
18 SDP comes out to be white or higher, then we get into
19 the argument using a Phase 3 of the SDP.

20 Currently the only approach we have is to
21 use really the SPAR models. The licensee has his own
22 model that he can use. I could see that if that
23 became a bid issue that having a Phase 3 PRA had been
24 developed to standards would be a much stronger
25 argument for producing a Phase 3 SDP argument that

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1 would bear some weight.

2 But that's just a couple of examples. You
3 know, we don't know all of the pros and cons of who
4 would want to develop things this way.

5 Okay. Phase 4. Phase 4 is -- Mike wanted
6 to just add a chart of pie in the sky here -- but it's
7 really going to be reached when the PRAs have been
8 developed to state of the art, and really state of the
9 art, I think what we're thinking of here is beyond
10 what industry currently does.

11 So you can think of it as something like
12 capability Category 3. It really is, you know, a
13 Rolls Royce of a PRA. I guess I can say that.

14 But in the white paper the Commission did
15 recognize that this would be extremely resource
16 intensive for both licensees and the NRC, particularly
17 because one of the things they would expect in the
18 phase 4 is that the staff has reviewed and approved
19 the licensee PRAs. Now, because the --

20 DR. ROSEN: Do you know how many cases
21 there are of the staff's review and approval of PRAs?
22 I assume approval means some sort of formal approval,
23 like an SER.

24 MR. PARRY: SER. I don't think there are
25 any of any current PRAs.

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1 DR. SIEBER: Now you're talking about a
2 general approval?

3 MR. PARRY: No. I'm talking about an
4 individual approval.

5 DR. SIEBER: No, but general approval as
6 opposed to specific issues.

7 MR. PARRY: Oh, as opposed to specific
8 issues, yes, right, yes.

9 DR. SIEBER: For any use.

10 MR. PARRY: Yes, for any use.

11 MR. HARRISON: Yeah, I think this would be
12 a case where if you're asking for an NRC stamp on the
13 licensee's PRA that says this PRA is good for anything
14 you want to use it for and --

15 DR. ROSEN: A state of the art PRA.

16 MR. HARRISON: As a state of the art PRA.

17 DR. ROSEN: Do you know how many of those
18 there are?

19 MR. HARRISON: None.

20 MR. PARRY: No, none probably.

21 DR. ROSEN: Currently now. Do you know
22 how many there have been in the history of the
23 technology?

24 MR. MAGRUDER: I think the only ones we've
25 done that I'm aware of are not actually licensees'

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1 PRAs, but we've approved PRAs for the advanced
2 reactors. We've approved a PRA for the ABWR, the AP-
3 600, AP-1000, but not --

4 DR. ROSEN: But I'm only talking about the
5 current fleet.

6 MR. MAGRUDER: Yeah.

7 DR. ROSEN: The current operating fleet.

8 MR. MAGRUDER: I don't believe we've
9 approved any.

10 DR. ROSEN: Well, it's a trick question,
11 I think, but I was willing to have a number given me,
12 but I think the answer is one. The gentlemen who were
13 here this morning are the holders of that PRA.

14 MR. HARRISON: I would even say in that
15 situation that was an approval for the exemption. If
16 they were to come in for another applications, they
17 would get reviewed again. Now, maybe --

18 DR. ROSEN: An SER for exemption.

19 MR. HARRISON: The exemption. So it's not
20 really an SER for the PRA. So the PRA is a strong
21 supporting element.

22 DR. ROSEN: I'm talking about a document
23 that arrived in 1989.

24 DR. ROSEN: Oh, is this the graded QA?

25 MR. HARRISON: Yeah, it was for graded QA.

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1 MR. PARRY: 1989?

2 MR. HARRISON: Oh, '99 probably.

3 DR. ROSEN: No, '89.

4 MR. PARRY: No, then you couldn't say that
5 that was state of the art because the current PRA is
6 probably an order of magnitude lower in core damage
7 frequency and totally different from what was existing
8 then.

9 DR. ROSEN: The question was very
10 specific. How many times has the staff written an SER
11 that said this PRA is a state of the art PRA, as of
12 today, as of the date they signed the letter?

13 DR. SIEBER: Never.

14 DR. ROSEN: I think the good answer -- I
15 restricted it later to domestic operating plants
16 because it's true that some of the advanced plants had
17 those, but for domestic operating plants, there has
18 only been one, and the reason I go through this --
19 unless you're willing to contest that subject, we'll
20 leave it at one -- is because it's an enormous
21 undertaking.

22 At least having experienced it once in my
23 career, it took all four national laboratories got a
24 hand in it, and it went on for years.

25 MR. PARRY: Almost as many resources as

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1 during the PRA in the first place.

2 DR. ROSEN: Un-huh. Now, that was the
3 first time they were ever involved and a lot of people
4 had to be trained and so on, but it took an enormous
5 amount of time and resources, and I think it is
6 totally unrealistic to say that the staff is going to
7 do that order of magnitude review on I don't know how
8 many PRAs that would be reflected in 103 operating
9 plants. Probably 60 or 70 maybe.

10 DR. FORD: But surely, Steve, what you're
11 saying is unless that roadblock is overcome in some
12 way or another, you might as well forget this whole
13 portrait.

14 DR. ROSEN: That's what I'm saying. I'm
15 saying that what this pays for is totally unrealistic.
16 The staff is going to do direct review and approval.
17 Unrealistic, can't work.

18 Now, it can work if the staff uses some
19 sort of other process, some sort of surrogate process
20 in which a standard is set in place and the licensees
21 or applicants have their work reviewed in accordance
22 with the standard prior period.

23 MR. PARRY: That's Phase 3.

24 DR. ROSEN: Well, then Phase 4 if you're
25 going to talk about direct staff review and approval.

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1 MR. PARRY: Which it does.

2 DR. ROSEN: My experience is you just will
3 never have the resources.

4 MR. PARRY: You might want to comment on
5 that in your letter if you feel that way. Fortunately
6 our plan doesn't really address Phase 4. The SRM
7 didn't ask us to do anything beyond that because I
8 think they realize that there are these resource
9 problems associated with it, too. Maybe not as much
10 as you're pointing out.

11 DR. ROSEN: Well, everyone is learning
12 something, and maybe all of our efficiencies in the
13 process, but I still think it would be an enormous
14 undertaking.

15 MR. PARRY: We agree.

16 MR. HARRISON: And just to make it clear,
17 the SRM specifically said not to even start to pursue
18 Phase 4 until you finish Phase 3.

19 MR. PARRY: Yeah.

20 MR. HARRISON: So basically the direction
21 was don't even go there until some time after 2008.

22 DR. ROSEN: Yeah. So we'll reserve our
23 comments on that.

24 MR. PARRY: Okay.

25 MR. MAGRUDER: The Commission put it in

1 the SRM, I think, because they considered this a
2 policy statement on where they want PRAs to go in the
3 future, and they wanted to have a vision for us to
4 look at in the future, and this is obviously, like
5 Mike characterized, this is pie in the sky, but that's
6 ultimately the vision.

7 MR. TSCHILTZ: Well, I think I'd like to
8 characterize my statement as I think it's a good thing
9 to reevaluate once we've reached Phase 3 based upon
10 what we know at that point in time.

11 CHAIRMAN APOSTOLAKIS: But there is
12 something that is not right if the first time one sees
13 the word "state of the art" is in Phase 4, you mean
14 Phase 3 is not state of the art?

15 MR. PARRY: I think it's good industry
16 practice.

17 CHAIRMAN APOSTOLAKIS: State of the
18 practice?

19 MR. PARRY: Yeah, I think.

20 CHAIRMAN APOSTOLAKIS: How different is
21 state of the practice from state of the art? What do
22 you mean by state of the art?

23 MR. PARRY: Well, if you look at
24 capability in Category 3, it does an awful lot of --
25 I mean, where there are capability Category 3

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1 requirements -- they do involve a lot of work that is
2 really an embellishment. It probably doesn't prevent
3 you from getting a pretty good understanding of risk.

4 Personally I think capability Category 2
5 ought to be appropriate.

6 Now, Stanley has got a comment to make.

7 MR. LEVINSON: Stanley Levinson from
8 Areva.

9 Capability Category --

10 PARTICIPANT: Areva?

11 MR. LEVINSON: Areva, formerly Framatome
12 AMP.

13 The point Gareth is trying to make is for
14 most of the applications, if not all of the envisioned
15 applications, capability Category 3 is sufficient
16 depth and breadth of the PRA to support those
17 applications.

18 MR. PARRY: You meant two, right?

19 MR. LEVINSON: Capability Category 2.
20 What did I say?

21 MR. PARRY: Three.

22 MR. LEVINSON: Capability Category 2. To
23 go on to capability Category 3 involves a lot more
24 additional work, presumably for very little benefit in
25 the game that you get in being able to support an

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1 application.

2 MS. DROUIN: You refer to, for example, on
3 your initiating events in Category 2 you might for
4 your low frequency ones discard them. For capability
5 Category 3, you would subsume them and carry them
6 forward. You would model all of your contributors.
7 You would do a lot less screenings.

8 MR. LEVINSON: You would keep everything
9 in there. Everything would be as plant specific as
10 possible. You wouldn't be getting the commensurate
11 gain from doing all of this extra work in terms of
12 being able to support a risk informed application.

13 It's leading you to be in a position where
14 you can make a risk based decision instead of a risk
15 informed decision.

16 CHAIRMAN APOSTOLAKIS: But we know we'll
17 never be there.

18 MR. LEVINSON: And we shouldn't be there.
19 Risk based is, you know, an ideal.

20 CHAIRMAN APOSTOLAKIS: I think it is
21 unfortunate to use the word "state of the art." Use
22 some other one. State of the art to me means you have
23 the latest model or technique that some professor
24 published in the Journal of Such-and-such last July,
25 that somebody at the National Laboratory came up with

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1 a new improved way of doing Monte Carlo simulation,
2 and you have that in your PRA.

3 That's state of the art.

4 DR. ROSEN: Can I summarize that, George?

5 CHAIRMAN APOSTOLAKIS: Yeah.

6 DR. ROSEN: I think I agree with you, but
7 I think state of the art means to me innovation.

8 CHAIRMAN APOSTOLAKIS: Well, that's the
9 latest method for doing something.

10 DR. ROSEN: It's innovative, not been done
11 before, obviously clearly superior.

12 MR. PARRY: Right, as opposed to good
13 enough for the application.

14 CHAIRMAN APOSTOLAKIS: Stated practice is
15 what Stanley just described. You know, this is good
16 enough for the decision.

17 MR. PARRY: It's been done before.

18 CHAIRMAN APOSTOLAKIS: It has been tried
19 by a lot of licensees.

20 MR. PARRY: And generally accepted.

21 CHAIRMAN APOSTOLAKIS: And it has been
22 accepted as a way of doing business. So it seems to
23 me that we should strive to be the state of the
24 practice which should be improving slowly with time as
25 people appreciate new, but --

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1 MR. PARRY: Without discouraging state of
2 the art.

3 CHAIRMAN APOSTOLAKIS: Yeah, I would take
4 the word "state of the art" out.

5 MR. PARRY: These are the words that were
6 in the SRM.

7 DR. ROSEN: See, I want to take it
8 further, George. I want to agree with you. State of
9 the practice is what we should encourage, but we
10 should also encourage in some way incentivize
11 innovation.

12 CHAIRMAN APOSTOLAKIS: Yes, absolutely,
13 and that's one of the major roles of this committee:
14 push a little bit. So the words "state of the art"
15 are from the Commission?

16 MR. PARRY: Yes.

17 MR. MAGRUDER: But I think we understand
18 your point that we're really --

19 CHAIRMAN APOSTOLAKIS: That's what comes
20 to my mind when they say "state of the art."

21 MR. PARRY: Yeah, and I think that's what
22 we agree.

23 MS. DROUIN: But don't interpret if you
24 use "state of the practice" which we connotate to the
25 capability Category 2, that that doesn't mean you

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1 don't have innovation and you don't have improvement
2 because of course you do.

3 CHAIRMAN APOSTOLAKIS: Let me give you an
4 example, Mary. As you know, there is a lot of
5 activity in Europe, and I think some of the American
6 codes are beginning to comply, especially ABS, using
7 BDDs, binary decision diagrams to do their
8 calculations. Now, I would call that state of the
9 art. This is now the most advanced. It does things
10 very rapidly. You don't need to cut off values
11 according to their claims and so on.

12 You don't need to do that in order to make
13 a regulatory decision because existing tools are good
14 enough, but that would be state of the sense that it's
15 the latest innovation. Okay? That doesn't mean that
16 it's needed, but it's the latest innovation.

17 Is that what this means?

18 By the way, there is talk among people now
19 that maybe our codes, like Sapphire, should be
20 upgraded to us BDD. So the state of the practice
21 follows slowly behind, but it is aware of what the
22 state of the art is.

23 Obviously that's not what the Commission
24 means, I don't think.

25 MR. PARRY: It's not clear what they mean.

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1 CHAIRMAN APOSTOLAKIS: It's not clear what
2 they mean.

3 MR. PARRY: But I think in a sense, I
4 think they do mean the limits of innovation because I
5 think there are some the words in the SRM. I can't
6 remember them.

7 CHAIRMAN APOSTOLAKIS: Anyway, enough said
8 on this. We all understand what --

9 MR. PARRY: Okay, but as I say, if you
10 want to comment on that in a letter, I think it would
11 be useful information, but we will take that away from
12 this meeting.

13 CHAIRMAN APOSTOLAKIS: To go with ten
14 other guys. It's exhausting.

15 MR. PARRY: Okay. One thing that I also
16 told you is we'd look at the different levels of
17 review between these phases. It was pointed out
18 yesterday that perhaps the word "ad hoc" is not really
19 giving the right connotation to review for Phase 1.
20 Really it's based on the experience of the reviewer,
21 what he will look at, but there's no formal process
22 that says you must look at this; you must look at
23 that. It's more, you know, looking at the analysis
24 and saying, "Okay. I think I need to follow this
25 thread to make sure that I think that the answer is

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1 right."

2 So that's what Phase 1 is. That's what we
3 do now.

4 Phase 2 helps us with our efficiency, but
5 also, I think, in terms of being able to state things
6 with more confidence because what we would expect in
7 Phase 2 then is that there is a reliance on peer
8 review in accordance with Reg. Guide 1.200, and our
9 review then would be focused on those things, on those
10 parts of the PRA which didn't meet the standard after
11 having Reg. Guide 1.200 -- these are the ASME
12 standards -- having Reg. Guide 1.200 apply to it.

13 And we would also do some sort of audits
14 just to make sure that we agreed with the peer review
15 comments.

16 Phase 3 is essentially the same as Phase
17 2 because they haven't really changed very much
18 there, but there is the potential that we could do a
19 one time review of the PRA if the PRA had been done to
20 the Phase 3 framework.

21 And Phase 4, as we already discussed,
22 would involved staff review and approval of the base
23 PRA.

24 CHAIRMAN APOSTOLAKIS: Have you presented
25 this to the Commission?

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1 MR. PARRY: No.

2 CHAIRMAN APOSTOLAKIS: You have not
3 briefed?

4 MR. PARRY: Not yet, but I'm sure they've
5 seen it.

6 CHAIRMAN APOSTOLAKIS: Because this is
7 really a very concise and understandable description
8 of the phases.

9 MR. PARRY: Thank you.

10 CHAIRMAN APOSTOLAKIS: I must say when I
11 read the SRM i had a lot of questions in my mind, but
12 if this is the interpret, then I think it's very nice
13 and concise.

14 MR. PARRY: Thank you.

15 We think that we have the right
16 interpretation.

17 CHAIRMAN APOSTOLAKIS: Are you going to
18 brief them at all before July?

19 MR. PARRY: It's not on our agenda right
20 now.

21 CHAIRMAN APOSTOLAKIS: It's not a
22 participatory review process with them.

23 MR. PARRY: Probably not. We'll send it
24 out like that.

25 MR. SNODDERLY: But it is on our agenda in

1 May, our May meeting with the Commissioners.

2 CHAIRMAN APOSTOLAKIS: Oh, with the
3 Commissioners.

4 MR. SNODDERLY: Yes.

5 CHAIRMAN APOSTOLAKIS: Can I have a copy
6 of your slides?

7 (Laughter.)

8 MR. PARRY: He's got them.

9 CHAIRMAN APOSTOLAKIS: Good. Thank you.

10 MR. PARRY: Okay. Now we get to the
11 controversial part.

12 DR. ROSEN: Well, I thought there was
13 quite a bit of controversy already.

14 MR. PARRY: Okay. I'm going to talk now
15 about the implementation, and I'm going to talk about
16 it using this flow chart, which is slightly different
17 from the one that you have in the draft plan. It was
18 modified slightly to fix a problem that we had with
19 the words in there.

20 But let me talk you through it, and again,
21 we had some, I think, very useful discussion on this
22 flow diagram yesterday, and it involved even the
23 logic, but also some of the wording in here, and that
24 we will, in fact, work on this to make it a little
25 clearer.

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1 The way this works is that supposing we
2 have a specific application in mind or a licensee has.
3 What Box 2 asks is are we in Phase 3 yet. Do we have
4 all of the Phase 3 guidance in place?

5 If we have, then we would kick off to the
6 next flow chart, while I'll talk about I think in a
7 few minutes.

8 (Laughter.)

9 MR. PARRY: If we're not in Phase 3 yet,
10 then we'll go to Box 3 and ask what are the risk
11 contributors that are needed to support the identified
12 application.

13 And, again, I'll remind you what I mean by
14 contributor is do I include low power shutdown; do I
15 include external events.

16 In Box 4 we'd ask is the guidance in place
17 to address the identified contributors for this
18 specific application. So if the specific application
19 requires an internal events PRA and a fire PRA, what
20 that box is asking me is do I have the standards in
21 place for the fire and the internal events.

22 If I say yes, I'm in Phase 2. So I come
23 out on the right-hand side of the box, the Box 4, and
24 I go to Box 10, and --

25 MR. TSCHILTZ: Just a clarification on

1 that. It's more than just the standards. It's also
2 the regulatory guidance and industry documents that go
3 along with the specific application.

4 MR. PARRY: Yes. Thanks, Mike. It's all
5 of the guidance in place.

6 Now, Phase 2 then in Box 10 asks has the
7 licensee's base PRA conformed to the existing standard
8 for the risk significant contributors. If it has,
9 then, yes, we're doing a Phase 2 application, and it
10 will get a normal -- well, sorry -- a high priority
11 NRC review of that application.

12 Now, you'll notice that the words that we
13 use in these boxes are high and low priority. Don't
14 necessarily get hung up on those words right now. We
15 haven't really figured out precisely what that means,
16 but it certainly denotes a relative priority at least.

17 CHAIRMAN APOSTOLAKIS: But also I assume
18 it means that the decision will be weak.

19 MR. PARRY: It will be timely, whatever
20 that --

21 CHAIRMAN APOSTOLAKIS: I mean there is
22 guidance. There are documents.

23 MR. PARRY: Right.

24 CHAIRMAN APOSTOLAKIS: They comply.

25 MR. PARRY: It should be relatively quick.

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1 You're right.

2 CHAIRMAN APOSTOLAKIS: Yeah. Now, when
3 you say "high priority," you don't drop everything as
4 you're doing. Right?

5 MR. PARRY: No, no, no.

6 CHAIRMAN APOSTOLAKIS: In terms of future
7 activities, you put it high under --

8 MR. PARRY: The real distinction is
9 between the high and the low. The low go to the
10 bottom of the pile, and the high come into the pile at
11 the appropriate level.

12 DR. KRESS: They get factored in.

13 MR. PARRY: No, they get normal.

14 DR. BONACA: -- more is the extent of
15 review you're going to perform there?

16 CHAIRMAN APOSTOLAKIS: What?

17 DR. BONACA: Is it possible?

18 MR. PARRY: No, I think the -- .

19 DR. BONACA: As a measure of the amount of
20 review you're --

21 MR. PARRY: Actually I think that's what
22 makes it high or low. If you need to do a lot of
23 review, then that means it's going to get a lower
24 priority.

25 PARTICIPANT: It's inversely proportional.

1 MR. PARRY: It's a resource thing.

2 DR. BONACA: That's how I read it.

3 MR. PARRY: That's really effectively the
4 impact, yeah.

5 PARTICIPANTS: In some way.

6 MR. PARRY: Okay. Now, if the licensee's
7 base PRA does not conform to all of those standards,
8 for example, if he doesn't have a fire PRA and yet he
9 should have one, then he's really coming in with a
10 Phase 1 type application when we have the Phase 2
11 guidance in place.

12 CHAIRMAN APOSTOLAKIS: When is this
13 applied now? In the future?

14 MR. PARRY: When we have the --

15 CHAIRMAN APOSTOLAKIS: In 2008?

16 MR. PARRY: When we have the guidance in
17 place of Phase 2, right. It doesn't apply right now.

18 CHAIRMAN APOSTOLAKIS: No, you can even go
19 to Phase 3 you said from Box 2.

20 MR. PARRY: That's also in the future.

21 CHAIRMAN APOSTOLAKIS: So this whole thing
22 is for 2008?

23 MR. PARRY: This is explaining -- well,
24 maybe before 2008.

25 CHAIRMAN APOSTOLAKIS: Because you will

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1 never go to Phase 3 before 2008.

2 MR. PARRY: We won't go to Phase 3 before
3 2008, but we can certainly come down --

4 CHAIRMAN APOSTOLAKIS: This time
5 invariate.

6 MR. PARRY: Yeah. This is trying to
7 explain how the process will work when we get into the
8 various phases. So when we get into Phase 2, that's
9 where I'm at now. I have the Phase 2 guidance for a
10 specific application and --

11 CHAIRMAN APOSTOLAKIS: Wait a minute. Let
12 me understand again Box 2. In the year of 2009, if
13 everything goes as planned, there will be guidance in
14 place for Phase 3.

15 MR. PARRY: Right. So we wouldn't need to
16 come down this.

17 CHAIRMAN APOSTOLAKIS: That doesn't mean
18 you automatically go to the right because the licensee
19 may have not --

20 MR. PARRY: That's true. That's true,
21 which is another question.

22 CHAIRMAN APOSTOLAKIS: So it's not a
23 matter of the guidance existing. Also the licensee
24 must have complied.

25 MS. DROUIN: You will see that when we get

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1 to the next flow chart.

2 CHAIRMAN APOSTOLAKIS: No, but in this
3 flow chart I think you need to send that message.

4 MR. PARRY: No, no, no.

5 MS. DROUIN: That message is on the next
6 flow chart.

7 MR. PARRY: Is also on the next one. It
8 is.

9 DR. ROSEN: It's continued.

10 MR. PARRY: Right.

11 MR. SNODDERLY: It goes to the next
12 viewgraph.

13 MR. PARRY: Right, it goes to the next
14 one.

15 MR. SNODDERLY: And it would receive a
16 higher priority than Box 11.

17 MR. PARRY: Well, wait until we get there.
18 Forget that for now. Wait until we get to the next
19 viewgraph.

20 Box 10, for the risk significant
21 contributors, right, he hasn't done a PRA for one of
22 the risk significant contributors. Then he comes
23 down, no, out of Box 10 to Box 12, and remember that
24 one of our requisites for all of these risk informed
25 applications is that all contributors need to be

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1 addressed one way or another.

2 If the risk contributors are not addressed
3 by any other means, then that's an inadequate
4 submittal and it will be rejected.

5 If, on the other hand, they are addressed,
6 we'll kick out and go to Box 13, and there's a typo in
7 there and that should read "low priority." Okay? For
8 which we apologize.

9 That may be correct in the --

10 MS. DROUIN: It's correct in the plan.

11 MR. PARRY: It's correct in the plan, but
12 it's not on this figure.

13 PARTICIPANT: That makes a hell of a
14 difference.

15 MR. PARRY: Yeah, it does make a hell of
16 a difference, yeah. Okay?

17 So that was the easy part of this. Okay?

18 DR. BONACA: So that's the stimulus to --

19 MR. PARRY: Yes.

20 DR. BONACA: -- perform whatever guidance
21 is available.

22 MR. PARRY: Right.

23 MR. MAGRUDER: Yeah, that becomes the
24 stimulus for the licensee to do the PRA for the scope
25 of what they need.

1 DR. BONACA: And that really interprets
2 what is really written in the SRM, in fact, at the
3 bottom of the page.

4 MR. PARRY: Right. That's the clear one.

5 Now, supposing now that we're in Box 4 and
6 three is an application that has identified a number
7 of significant, potentially significant contributors
8 to the decision, but the guidance isn't all in place
9 yet. So we come out of there with no

10 And we enter Box 5, which is where we got
11 hung up yesterday tremendously, and even though we had
12 fixed the words from what you have in the plan to more
13 accurately represent the message that we were trying
14 to generate by this particular box.

15 Okay. What we're saying in this box is,
16 and this is a proposal, okay; this is going to be a
17 source of quite a lot of discussion, I believe. What
18 we're saying in this box is has the licensee got an
19 application where he's using a PRA scope that's
20 greater than that for which the guidance exists, okay,
21 and you can think of this as if there's guidance out
22 there for internal event fire PRA, but he wants to use
23 a fire PRA in his application, but he's using i for a
24 specific purpose, which is to expand the scope of the
25 application, and a good example of this would be 5069,

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1 what 5069 does is it allows relaxation from special
2 treatment requirements. If it current -- let me flip
3 forward. I think there's a -- yeah, let me flip
4 forward to Slide 19.

5 In the current vision of 5069, what the
6 NEI 00.04 categorization process does is it allows the
7 use of non-PRA methods for certain contributors. But
8 what it does is that it restricts the scope of SSEs to
9 which 5069 could be applied by saying if you're in one
10 of these non-PRA methods and you're using those SSE's
11 to demonstrate that the risk is small from those
12 contributors, you're not allowed to put those in the
13 scope of 5069. So they all remain in their current
14 classifications.

15 All of the risk one SSEs that you rely on
16 will remain risk one. You can't adjust them.

17 Now, we have Reg. Guide 1.200. Once we
18 have regulatory guide endorsing NEI 00.04, which would
19 come from DG-1121, and if it endorses the current
20 version of NEI 00.04, then what we could have is we
21 could have a Phase 2 application because we have all
22 of the guidance in place, but only for those licensees
23 that are just going to recategorize the components
24 that are in the Level 1 and the limited Level 2 PRA.

25 If they follow the guidance in NEI 00.04

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1 and don't recategorize the things that these fires,
2 seismic, others, then there will be a Phase 2.

3 Now, if they want to use a fire PRA in
4 addition to the internal events PRA, it means they
5 have a chance of putting a lot more components into
6 the risk three category, therefore more relaxation.

7 But this would then be a Phase 1
8 application effectively until the standard for the
9 fire PRA is completed. Okay?

10 So now let me back up to the flow chart.
11 What we've suggested here in this box is if they were
12 to do that before we have the standards available,
13 this would have to be a more resource intensive review
14 on our part and, therefore, we propose tentatively
15 that this would be low priority. Okay?

16 Now, we're getting arguments that, well,
17 okay, but this doesn't really give incentive to
18 licensees to develop PRAs, and there's truth in that.

19 MR. TSCHILTZ: It does incentivize the
20 development of the standard.

21 PARTICIPANTS: Yeah.

22 MR. PARRY: So we had identified this as
23 a potential policy issue. Now, maybe after
24 discussions among the staff, we may decide that that's
25 not where we go, but currently we can see that it

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1 might be because it has some pros and some cons
2 associated with it.

3 Now, one of the things that occurred to me
4 this morning while listening to the tech spec 4(b)
5 initiative this morning is that that's -- and that's
6 an example we've been discussing -- is that that is an
7 area where we think the fire PRA would be extremely
8 useful, if not essential, to do this, and yet the
9 standards don't exist.

10 I'm wondering. Well, this hasn't been
11 thought through, but it's possible that if we were to
12 argue that that was clearly a safety improvement by
13 using that, then even before the standards were
14 available, we might not choose to make that a low
15 priority review, which I think addresses to some
16 extent the question that you had obviously.

17 CHAIRMAN APOSTOLAKIS: But there's an
18 element here that at least to me is very new. It
19 appears that the consequences of various
20 possibilities, the consequences are really whether you
21 place the application you're assigning a high priority
22 or low priority.

23 PARTICIPANTS: Yes.

24 CHAIRMAN APOSTOLAKIS: Which is not
25 mentioned in the SRM at all, as far as I remember.

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1 MR. PARRY: Well, it is.

2 CHAIRMAN APOSTOLAKIS: It is?

3 MR. PARRY: Yes, it is.

4 CHAIRMAN APOSTOLAKIS: Tell me where.

5 MR. TSCHILTZ: It's in the Phase 2
6 section, at the end of Phase 2.

7 MR. PARRY: See, how this example is a
8 little beyond that. Okay?

9 CHAIRMAN APOSTOLAKIS: This isn't a
10 real -- the real thing is that if you don't have the
11 -- if you have it and you don't comply, it takes much
12 longer to approve it, does it not?

13 MR. MAGRUDER: Right.

14 CHAIRMAN APOSTOLAKIS: That's really what
15 happens.

16 MR. MAGRUDER: Right.

17 CHAIRMAN APOSTOLAKIS: Because you can't
18 say forever, "Look. It's low priority. We have other
19 things to do."

20 DR. ROSEN: Oh, no?

21 (Laughter.)

22 DR. ROSEN: I would just revise you
23 remarks and extend it by saying you can and the staff
24 has many, many times said, "Look. This is such low
25 priority we'll probably never get to it because by the

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1 time we get to it, there will be something else here
2 that's higher priority.

3 MR. PARRY: Effectively that's what it
4 means.

5 DR. ROSEN: The only one that leaves us
6 constrained to the dust bin of history.

7 DR. BONACA: Box 6, it's an issue.

8 CHAIRMAN APOSTOLAKIS: What?

9 DR. BONACA: Box 6 is an issue because, I
10 mean --

11 MR. PARRY: It is.

12 DR. BONACA: -- I mean, just because they
13 were a pilot, you know, Texas Project went through,
14 but that would be a case where somebody comes with a
15 PRA like Texas project and submit the application to
16 cover a wide scope of components for which there is no
17 guidance now and you put them on a slow burn. They
18 may have the best PRA that there is.

19 MR. PARRY: But the reason that we did
20 that though is because of the resources. That's the
21 reason we put that in here.

22 MR. TSCHILTZ: If I can also look at the
23 approach from the staff's point of view, if you have
24 103 different facilities taking different approaches
25 to all of this and then having to do individual

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1 specific reviews for each one of these, the burden
2 becomes huge, especially for something like 5069.

3 DR. BONACA: No, I'm not arguing the fact
4 that there isn't a logic behind that. It's just
5 simply that I'm reflecting on this as I also think on
6 the letter that the SME sent essentially filling that
7 already the timetable is addressed and they may not be
8 able to support it.

9 So if standards take so long to develop,
10 what's the timetable? I'm afraid that I won't in my
11 lifetime be able to see much progress.

12 DR. ROSEN: I want to comment, Mario, on
13 your point about the South Texas initiative. It was
14 not done in this framework.

15 PARTICIPANTS: Right.

16 DR. ROSEN: It was done in this 50.12
17 exemption framework, which I would suspect anybody
18 else who came in and said they want an exemption from
19 regulations and showed cause as South Texas did in
20 their case, that you would take them out of this
21 process and handle it some other way.

22 DR. BONACA: Plus there was an enormous,
23 intense review that took place because it was an
24 interesting pilot. I'm only saying that, however, in
25 this case you could have somebody with the reputation

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1 developing state of the art PRA, covering all of the
2 ground, et cetera, and you won't be able to do much
3 with it.

4 MR. TSCHILTZ: If I can comment, I think
5 one of the thought that we were having was if a
6 licensee came in with a new approach to something on
7 a proof of principle or proof of concept on something,
8 that that wouldn't really be in this process because
9 you're trying to do something that will then
10 eventually become guidance or become a standard or it
11 may feed back in.

12 Similar to like pilot applications, you
13 wouldn't want to say, "Well, we're piloting the
14 guidance. Therefore it's not in place. Therefore,
15 you get a low priority review during the pilot. We
16 don't want to be in that type of Catch-22.

17 DR. ROSEN: Catch-22. You would never
18 have got to 5069 if that's the way you were doing it.

19 MR. TSCHILTZ: Right, and so one thought
20 is that things like that are really not part of this
21 process. They're a developmental process.

22 CHAIRMAN APOSTOLAKIS: Can you find
23 different word? High/low priority is not the right in
24 my mind. Can't you find other words that indicate
25 happiness and unhappiness?

1 (Laughter.)

2 CHAIRMAN APOSTOLAKIS: I'm serious. Low
3 priority is like, you know, I'll punish you. You go
4 outside for an hour. I mean, come on, and then you
5 have these problems.

6 But the Commission mentions low priority,
7 but it doesn't mean -- or nonconformance?

8 MR. PARRY: It is one of the issues, I
9 think, that we have to address in our implementation
10 plan of what the different levels of priority are.
11 Maybe there need to be more than two.

12 CHAIRMAN APOSTOLAKIS: Yeah, or you can
13 say, you know, NRC staff detailed review required,
14 which means, you know, you send them 1,000 RAIs. I
15 mean something a little more professional than saying
16 that we'll punish you. You're going down.

17 MR. PARRY: Well, okay.

18 CHAIRMAN APOSTOLAKIS: I don't like it.
19 I mean, do other members feel that a high priority --

20 DR. ROSEN: It's perfectly clear to me,
21 George, what low priority for NRC staff review of a
22 license request means. From an industry's perspective
23 that means nothing. It means you can forget it.
24 That's what it means.

25 CHAIRMAN APOSTOLAKIS: So it's really a

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1 rejection of the submittal. Well, you should actually
2 say that.

3 MR. TSCHILTZ: Well, but we haven't set
4 that structure yet. I mean, what I envision you could
5 have is for the normal review process right now is we
6 have goals that say we'll complete 95 percent of those
7 reviews in one year. In two years we will complete
8 all license application reviews. I could envision one
9 answer being that if it's a low priority or a resource
10 intensive, that for those they would not be on that
11 one year-two year clock. They would be on a different
12 time clock.

13 DR. ROSEN: As your resources become
14 available, which is what --

15 MR. MAGRUDER: Well, but you would still
16 want to have a date. You would still want to say two
17 years or three or something like that.

18 MR. TSCHILTZ: I mean, if I could just
19 interject, the one thing that I think I see that I
20 don't think anyone has commented on is that there's
21 some licensees who are progressive in regard to the
22 developing PRAs for which standards don't exist, and
23 I would open it to Biff to comment if he disagrees on
24 this, is that I think the vast majority of licensees
25 now that they see that standards are being developed

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1 for these different portions of the PRA are going to
2 wait till the standard is in place before they invest
3 in developing those PRAs because they don't want to
4 develop something that's not in accordance with the
5 standard that's going to come out a year or two later.

6 DR. ROSEN: I heard the other argument the
7 other day that some licensees are suggesting that
8 since the standards are not in place, that in fact,
9 they cannot be standards that still enough
10 practitioners actually get out and do these things.
11 So it's kind of a reverse Catch-22 thing. You can't
12 get a standard until, you know, a majority of people
13 do it, the state of the practice, let's say.

14 So standards don't come along until kind
15 of everybody does it this way. Then you get a
16 standard. So that's just the obverse of what you were
17 just saying.

18 MR. BRADLEY: Sine Mike invited me to
19 comment, I will. I would tend to agree with him that
20 there are a lot of licensees that aren't going to
21 further develop their PRAs now, given that standards
22 are imminent or semi-imminent.

23 However, there are a lot of licensees that
24 have put significant investments into, say, fire PRAs.
25 About half of the licensees do have fire PRAs versus

1 five or some other method, and the same is true with
2 seismic. About 50 percent of the licensees do have
3 seismic PRAs and our concern with this BOTS-5, BOTS-6,
4 as it was. It would tend to say, well, you have that
5 model, and in some cases it may be a pretty good model
6 even though the standard is not developed yet, and it
7 would essentially say, "Well, I can't use it."

8 For applications I'm doing between now and
9 the time that standards out, which in the case of fire
10 we're talking a long time to get the standard
11 developed, you know, peer reviewed, endorsed by the
12 staff. We're talking five to eight to ten years, you
13 know, a fair length of time. In that long interim
14 plants may have a pretty good fire PRA that they're
15 pretty much going to have to put it on the shelf.
16 That was our concern with that box.

17 And even in the example of 5069, the way
18 that is tailored, if a plant is planning to use a fire
19 PRA, it's probably because they chose to develop a
20 fire PRA instead of a five. So they don't have the
21 fall-back position of being able to take everything on
22 their five, say, shutdown path keep that high and keep
23 it risk one. They'd either have to go out -- they'd
24 nearly be forced to go out and do five even though
25 they have a fire PRA.

1 So there are a number of we saw troubling
2 issues with that BOTS. I understand the staffs need
3 to conserve their resources on this, but a Gareth
4 said, there was just a tremendous amount of discussion
5 yesterday on that BOTS-5 and BOTS-6.

6 MR. PARRY: And we were aware that there
7 would be when we chose to go this path. So really
8 it's a -- that's why we proposed it as a potential
9 policy issue in which we would develop all of the pros
10 and cons, including what we just heard from Biff.

11 So I think this is not cut and dry, but
12 this is an issue, I think, that is significant and,
13 you know, some of these things you can't really
14 predict how it would work out if you chose one path or
15 another.

16 CHAIRMAN APOSTOLAKIS: But, again, what
17 bothers me about this is that the whole thing is
18 driven by the existence of standards.

19 MR. PARRY: But that's the way the phases
20 are defined, George.

21 CHAIRMAN APOSTOLAKIS: It is very
22 troubling. I mean, I can see the standards playing a
23 role, but you reach the point where you say, you know,
24 you have done a state of the art --

25 MR. PARRY: Who says?

1 CHAIRMAN APOSTOLAKIS: -- analysis of
2 fires, but because there is no standard, whew, we are
3 punishing you. That doesn't make sense to me. This
4 is too standard driven. Somehow we have to relax that
5 a little bit.

6 DR. ROSEN: Well, the part about standards
7 driven that bothers me is that if the standards
8 development organization decides not to proceed on the
9 schedule that's on or not at all, then I think that
10 leaves the whole thing in the staff's hands.

11 MR. PARRY: If they don't do that though,
12 then we're probably in Phase 1 forever, and that does
13 leave us in --

14 DR. ROSEN: Then that's obviously not
15 where the staff wants to be.

16 MR. TSCHILTZ: But I think the other thing
17 that we learned at yesterday's meeting was that maybe
18 the prioritization of development of standards needs
19 to be rethought because fire is fairly far out in the
20 future, but when you look at its contribution to risk
21 and the insights you get from it, they're substantial
22 as compared to others.

23 So maybe there ought to be a
24 reprioritization of the scheduling of the development
25 of some of these standards so that the high priority

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1 are the ones that are at the greatest risk
2 contributor.

3 CHAIRMAN APOSTOLAKIS: Is there any
4 evidence anywhere that some organization or some
5 groups are resisting the issuance of standards and
6 guidance?

7 MR. TSCHILTZ: No, I don't think so.

8 CHAIRMAN APOSTOLAKIS: Dragging their
9 feet?

10 MS. DROUIN: I don't think you have
11 absolute agreement that there's standards. I think
12 you have a consensus, which is different than
13 everybody agreeing.

14 CHAIRMAN APOSTOLAKIS: But you're going
15 now to the technical level.

16 MS. DROUIN: No. I'm just saying whether
17 or not you should have standards.

18 CHAIRMAN APOSTOLAKIS: One way of
19 interpreting the four phases, and this diagram
20 certainly supports that, is that it puts pressure on
21 everybody to develop the guidance of the standard.
22 Okay?

23 Even if you have an excellent PRA, Box 6
24 says you had better develop the standards as soon as
25 you can. Question: do I need that? Is anybody

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1 resisting having standards so that I need to publish
2 this and say, "You do it or else"?

3 I don't know.

4 MR. PARRY: I have certainly heard people
5 argue that you don't need standards, that all you need
6 is peer review, but again, if you don't know how the
7 peer review -- from our point as a regulatory agency,
8 we don't know the rules that the peer review has used.
9 It's sort of buying a pig in a poke.

10 CHAIRMAN APOSTOLAKIS: So far the peer
11 reviews really have tremendous latitude, don't they?
12 The so-called standards really tell them what elements
13 to look at, but how these elements are satisfied or
14 performed, I don't think there is much guidance.

15 MR. PARRY: That's true.

16 CHAIRMAN APOSTOLAKIS: But that's where
17 the action is, right?

18 MR. PARRY: Yeah, but you know, a lot of
19 the things -- but that's where the peer reviews
20 probably do come into their own because they will
21 use --

22 CHAIRMAN APOSTOLAKIS: Right.

23 MR. PARRY: But they are required to
24 document whether the assumptions that have been made
25 or the methods that are used are appropriate.

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1 CHAIRMAN APOSTOLAKIS: Which we have
2 already, right?

3 MR. PARRY: Which then you can read.

4 CHAIRMAN APOSTOLAKIS: We do have that
5 now, don't we?

6 MR. PARRY: Well, that's what the peer
7 review process asked people to do, right?

8 CHAIRMAN APOSTOLAKIS: Yes. Let me make
9 it clear what confuses me a little bit. If this whole
10 effort, the intent of the SRM and the implementation
11 plan, is to make sure that we have guidance --
12 collectively how that means standards and regulatory
13 guides -- as soon as we can, I'm a little puzzled by
14 that because I haven't sensed that people have
15 objected to having standards.

16 I mean, it takes time, sure. You have to
17 agree. You have disagreements, this and that and so
18 on, the other thing. So why go through all of this?
19 You have a whole SRM just to develop standards. Is
20 that the point or am I missing something?

21 MR. MAGRUDER: I think that one of the
22 main points of the SRM is to make sure that the staff
23 and the public have more confidence in the results of
24 the PRAs and how we use the PRAs, and I think the
25 Commission decided that the best way to do that is to

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1 have consensus standards in place so that everybody
2 can point to them and say, "We know this is a good PRA
3 because it meets this standard.

4 CHAIRMAN APOSTOLAKIS: Even at the expense
5 of perhaps punishing somebody who is doing a good job
6 now, but because there's no standard, we put them on
7 the low priority.

8 MR. MAGRUDER: Well, I'm not sure if
9 punishing is the right word.

10 CHAIRMAN APOSTOLAKIS: Penalizing.

11 MR. MAGRUDER: I don't think. I think --

12 MR. PARRY: Not even penalize. It's just
13 not allowing as much --

14 MR. MAGRUDER: Prioritizing our reviews,
15 I think is --

16 DR. ROSEN: I have a little bit different
17 take on this same subject. It's very clear, and I
18 agree that the Commission wants to have criteria for
19 judging the adequacy of PRAs, and that's absolutely
20 correct and we should have them.

21 And they have chosen to select the
22 consensus standards process for doing that, forgetting
23 those criteria in place for judging adequacy, and
24 that's exactly the right thing to do.

25 In fact, there's a circular from the OMB

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1 that suggests that you had better do that, and
2 certainly the Commission rightfully reads those
3 circulars from the OMB.

4 And that's the course they're on now. All
5 of this makes sense. The question is: what if the
6 standards organization either decides not to do the
7 standard at all, in other words, there is no consensus
8 standard being developed, or they choose to stretch it
9 out for much, much longer than the Commission has
10 tolerance for.

11 So what I think the out for this -- and I
12 frame the problem -- and I think the solution for the
13 problem is for the staff to make it explicit that if
14 this thing gets protracted for too long or if the
15 standards aren't going to be done at all, that the
16 staff is going to independently develop its own what
17 do you call them? Regulatory guides? Whatever other
18 document that the staff wants to have for judging the
19 adequacy of the work.

20 I mean, that gets you out of the bind of
21 putting this over into the standards development.

22 DR. SIEBER: But the staff always has that
23 option.

24 DR. ROSEN: The staff always has that
25 option, but they ought to make it --

1 DR. SIEBER: You can use it at any time.

2 DR. ROSEN: They kind of make it explicit
3 in the overarching material that leads us into these
4 diagrams, I think.

5 CHAIRMAN APOSTOLAKIS: But what if the
6 standard says do a human reliability analysis? As far
7 as I'm concerned, it's useless unless you tell me how
8 you're going to do it.

9 DR. ROSEN: Well, then you're a
10 stakeholder who ought to say so when you --

11 CHAIRMAN APOSTOLAKIS: But to make such a
12 big deal out of having a standard that is vacuous
13 bothers me. Don't you need the regulatory guide to
14 tell you how to actually do the things that the ASME
15 standard requires?

16 MR. PARRY: No, not necessarily.

17 CHAIRMAN APOSTOLAKIS: Yeah, you do.

18 MR. PARRY: What the standard -- I'll pick
19 on HRA as one area -- what it does, it tells you the
20 thing that the HRA has to do. What it falls short on
21 is telling you which quantitative method to use, and
22 I don't -- but it does have certain requirements for
23 that quantitative method, which I think if they're
24 applied correctly will give the right relative values
25 to the human error probabilities for the various

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1 scenarios.

2 DR. SIEBER: Agreed.

3 MR. PARRY: And we can live with that
4 because we know those HEPs are always going to be
5 uncertain, and we will factor that into our decision
6 making.

7 MS. DROUIN: Let me go a step further,
8 George, picking up with what Gareth said. If I go
9 back to when we were reviewing the IPEs, you know, we
10 ha da lot of problems with the HRAs. I would submit
11 that the standard as it exists today, if it had
12 existed prior to the generic letter, a lot of the
13 problems that we had with HRA would not have occurred.

14 CHAIRMAN APOSTOLAKIS: Fine.

15 MS. DROUIN: Because it has enough
16 guidance in it for some of the major problems we
17 found.

18 CHAIRMAN APOSTOLAKIS: Why are you trying
19 Regulatory Guide 1.200? What's in it?

20 DR. SIEBER: It endorses the standard.

21 CHAIRMAN APOSTOLAKIS: That's all it does?

22 PARTICIPANT: Well, it does much more.

23 DR. SIEBER: Yeah, there's a lot more in
24 it.

25 MS. DROUIN: It does more than that.

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1 CHAIRMAN APOSTOLAKIS: And why was there
2 a need for 1.200? Because the ASME standard by itself
3 is not sufficient.

4 MR. PARRY: But Reg. Guide 1.200 doesn't
5 fill in the gaps that you are worried about in the
6 ASME standard. It's a vehicle for endorsing the ASME
7 standard according to some high level requirements on
8 these analyses.

9 CHAIRMAN APOSTOLAKIS: It imposes some
10 addition stuff. I mean, there is explanations, as I
11 recall.

12 DR. ROSEN: We're not giving standards
13 enough credit in this discussion. The other value of
14 standards is that it establishes the framework for
15 advancing in the future.

16 MS. DROUIN: Absolutely.

17 DR. ROSEN: People can come in and say,
18 "Here. With respect to this paragraph of the standard
19 we need to expand it. Here's a suggested alternative
20 that's better." And that's the way to move forward.

21 CHAIRMAN APOSTOLAKIS: Isn't it true that
22 I can have two licensees both complying with the ASME
23 standard, submit an application, and one is rejected
24 and the other is accepted at PRA expense?

25 MR. PARRY: I think it's possible, but I

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1 think it would be on the basis that the assumptions
2 that one had made were not appropriate. That would be
3 the basis for rejection because if they met the
4 standard, they would at least have the fundamental
5 logic framework of the PRA set out correctly; is that
6 right, Mary?

7 MS. DROUIN: No. I would disagree with
8 you that I think the likelihood if somebody met the
9 standards, two different people meeting it different
10 ways, and one of them being rejected, I think the
11 likelihood of that is very small, and the reason why
12 is because the standard does impose a peer review, and
13 I think if you just relied on Chapter 4 of the
14 standard, then I would agree with what Gareth said.

15 But the standard does impose that peer
16 review, and I think that's a critical part of the
17 standard that people keep forgetting, and I think
18 because that peer review is in there, I think the
19 likelihood of your example occurring is very small.

20 CHAIRMAN APOSTOLAKIS: Haven't we said
21 many times that the standards don't tell you how to do
22 sometime?

23 MR. PARRY: Particular if they're
24 responding to the peer review comment.

25 MS. DROUIN: Yes.

1 CHAIRMAN APOSTOLAKIS: I thought we said
2 a lot of --

3 DR. ROSEN: The standards don't tell you
4 how to do something, but the peer reviewers are
5 typically high level practitioners, the people who are
6 on the peer review, plus regulators. And these high
7 level practitioners are actually more critical of what
8 they see than you might ordinarily expect.

9 Having been through one --

10 CHAIRMAN APOSTOLAKIS: So I have to rely
11 on the kindness of strangers.

12 DR. ROSEN: Actually you're relying on the
13 unkindness of strangers.

14 MR. LEVINSON: Actually, to agree with
15 Steve, you're relying on the unkindness of strangers.
16 I've been involved in the peer reviews, and there is
17 no kindness among the peer review team. I mean, they
18 go in there, and they really want to tear that PRA
19 down.

20 CHAIRMAN APOSTOLAKIS: I think this
21 discussion is completely off --

22 MR. LEVINSON: But that's not the point I
23 wanted to make. When you're talking about standards
24 and the ability to get them done and whether that
25 would curtail the process and what the NRC staff would

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1 have to make up, right, the NRC is participating with
2 the ASME and ANSI or ASME and ANS that the two main
3 standard development organizations in a joint risk
4 management standards coordinating committee to insure
5 that there is some proper direction and coordination
6 with the subsequent development of the standards so
7 that, one, you don't get gaps and, two, you don't get,
8 you know, multiple people working on the same thing.

9 DR. ROSEN: And they came in to brief us
10 just the last month or so.

11 MR. LEVINSON: Yes, they did, Kent Bulkey
12 and --

13 DR. ROSEN: Yes, and his colleagues.

14 MR. LEVINSON: -- Ray Widener and Wes
15 Raleigh came in. I just wanted to remind you that --

16 CHAIRMAN APOSTOLAKIS: Yeah. We have an
17 SRM that wants to increase public confidence in what
18 we're doing by requiring standards, but then our own
19 confidence depends on a bunch of guys who are peer
20 reviewers, and we rely on their conscience that they
21 will do a good job.

22 MR. TSCHILTZ: In part, but I think we
23 learned a lot from what we got out of the asme
24 standard, Reg. Guide 1.200.

25 CHAIRMAN APOSTOLAKIS: Sure. I don't want

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1 to put it down.

2 MR. TSCHILTZ: But what we learned from
3 the NEI peer reviewers, the ASME standards and Reg.
4 Guide 1.200 is that if things don't progress in a
5 logical sequence of events, you end up with documents
6 and requirements that are misaligned and are difficult
7 for anybody to wade through. I call it a Ph.D. in PRA
8 technology to align all of the differences in between
9 these documents.

10 And it's not a result of a bad effort by
11 anyone. It's just the sequence of which things
12 occurred, and so I think we have an overly complex set
13 of requirements right now that I think we're hoping to
14 avoid by involving things in a more --

15 CHAIRMAN APOSTOLAKIS: Right. Now, you
16 will address the technical issues later?

17 MR. PARRY: Yes.

18 CHAIRMAN APOSTOLAKIS: Right?

19 MR. PARRY: Yes.

20 CHAIRMAN APOSTOLAKIS: Okay. So let's
21 take a break now.

22 MR. PARRY: Well, can I finish this? You
23 know, we did the same thing yesterday. Can I just
24 finish this viewgraph and then we'll come back?

25 CHAIRMAN APOSTOLAKIS: Okay.

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1 MR. PARRY: Assuming that we've got
2 through Box 5 with a no, okay, which means that the
3 licensee is using the scope of PRA for which the
4 standard is, all that box says, all that Box 7 says is
5 is he treating all of the risk contributors one way or
6 another.

7 If he is, this is our normal process.
8 This is what we do now. It will be a high priority
9 review. If he doesn't address the risk contributors
10 that are not in the scope, it's an inadequate
11 submittal. And so that's the process as currently
12 existing.

13 Okay. So now we can have a break if you'd
14 like, and we'll come back to the second one, which
15 hopefully we'll breeze through.

16 CHAIRMAN APOSTOLAKIS: Okay. Until 3:15.
17 (Whereupon, the foregoing matter went off
18 the record at 2:54 p.m. and went back on
19 the record at 3:13 p.m.)

20 Okay. Let's continue then.

21 MR. PARRY: I think we should try and get
22 through this one pretty quickly.

23 (Laughter.)

24 MR. PARRY: Because I think there is
25 somewhat less controversy over this, hopefully.

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1 You remember on the first two boxes on the
2 previous slide, there's Box 2. If we had enough Phase
3 3 guidance, we'd skip out to Phase 3, and basically
4 what this diagram says is that really there's a choice
5 that the licensee has here. Either he can conform to
6 the full Phase 3 framework and then he can have a PRA
7 for which he could request a one time review that, you
8 know, would be good for everything or he could stay in
9 effectively Phase 2 space where he would submit a
10 specific application and he would demonstrate that he
11 was in Phase 2 for that specific application.

12 And if he did not conform to Phase 2 for
13 that application, his submittal would be rejected
14 automatically. What this really means is that there
15 is no Phase 1 when we're in Phase 3. Okay?

16 DR. SIEBER: Would you say that because of
17 this process if everybody had lead feet you would stop
18 at Phase 2?

19 MR. PARRY: Well, that's a question, and
20 in fact, it's the other potential policy issue that
21 we've put down right now, is whether when we get to
22 this stage the expectation is that everybody migrates
23 towards a Phase 3 PRA, and they're not allowed to do
24 individual Phase 2 applications.

25 DR. SIEBER: But it doesn't say that right

1 now, right?

2 MR. PARRY: It doesn't say that right now,
3 no. It doesn't say that because right now we have at
4 Box 19, for example, which is Phase 2 as high
5 priority.

6 DR. SIEBER: Right.

7 MR. PARRY: Now, if we had put low
8 priority in that box, I think we would have got some
9 significant --

10 DR. SIEBER: That would be a --

11 MR. PARRY: We'd be discussing this till
12 five o'clock.

13 DR. SIEBER: That would be de facto a
14 Phase 3.

15 MR. PARRY: Yeah.

16 MR. HARRISON: But I think one thing
17 that's worth noting is that once you've got the Phase
18 3 guidance in place and licensees could go in that
19 direction, we won't be entertaining Phase 1
20 applications.

21 MR. PARRY: Yeah, that's clear.

22 DR. ROSEN: This is very troublesome
23 language. Box 2 I'm referring to.

24 MR. PARRY: Yeah, you're right, and that
25 was raised yesterday, too, and it really is a bad

1 word. Again, it's a word we borrowed from the SRM,
2 and I think what we are going to interpret by that is
3 all current applications, all that sort of stuff we do
4 now or are planning to do in the next few years, and
5 so that would include like 5046 and 5069, which are
6 not in existence yet, but it wouldn't involve a
7 radical new application that would require, say, a
8 Level 3 PRA.

9 DR. ROSEN: Where I'm going, Gareth, is
10 5046 is radical and new. To me I think it's going to
11 be a long time until you get 5046 under your belt.

12 MR. PARRY: But the way it's going though,
13 does it look to you like the metrics would be used to
14 make the decision are likely to be different from the
15 ones we use now?

16 Because I think the one thing, I think,
17 that would really throw a spanner in the works is if
18 we started one thing, full Level 2 and full Level 3
19 PRAs because those standards are not even being --
20 well, I think they're being talked about, but not in
21 any serious way being developed, I don't believe; is
22 that right, Mary?

23 MS. DROUIN: There's a lot of talk within
24 ASME of writing a Level 3 standard and there is talk
25 about putting together a team to write a Level 3.

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1 In terms of expanding the LERF part of the
2 Level 2. That has been kind of tabled for right now.

3 MR. PARRY: The LERF part of Level --

4 MS. DROUIN: Of full Level 2.

5 DR. ROSEN: See, "all" is a very little
6 word, but it's a very big word.

7 MR. PARRY: Yeah.

8 DR. ROSEN: And "envisioned" is another
9 one.

10 MR. PARRY: Yeah, that's even bigger.

11 DR. ROSEN: It's even bigger, yeah. It's
12 whose vision are you talking about.

13 MR. PARRY: Yeah, that was raised
14 yesterday.

15 DR. ROSEN: Would it really be harmful to
16 this if you said for currently implemented
17 applications?

18 MR. HARRISON: And I would even say
19 currently risk informed applications so that it's
20 nothing beyond what you're doing in the risk informed.

21 CHAIRMAN APOSTOLAKIS: Currently
22 anticipated?

23 MR. HARRISON: Yeah, I think it could be.

24 MS. DROUIN: I like anticipated because I
25 do think it can include 69, and I disagree. I think

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1 it can include 5046. I don't disagree that 5046 is
2 several years, but I don't think it's several years in
3 determining what your scope needs are from a PRA
4 perspective.

5 MR. PARRY: Right. I agree. I think
6 "anticipated" is probably the right word to use.

7 DR. ROSEN: All right. Well, we can
8 differ on that one, but "all" and "envisioned" are two
9 words --

10 MR. PARRY: Yeah, we agree. We agree.

11 CHAIRMAN APOSTOLAKIS: Why are people
12 talking about the Level 3 standard? What interest do
13 they have?

14 MS. DROUIN: Now you're really opening up
15 a can of worms. You know, I don't ant to speak on
16 behalf of ASME.

17 CHAIRMAN APOSTOLAKIS: No, but I mean your
18 impression. Does anybody here speak for the ASME?

19 MS. DROUIN: Stanley?

20 MR. BRADLEY: Biff Bradley from NEI.

21 I was trying to recollect the discussions.
22 I think as part of a license renewal there is some
23 level three work that has to be done, and it seems
24 like there was some discussion in the committee along
25 those lines that led to the Level 3 decision.

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1 MR. HARRISON: Stanley Levinson.

2 Even Level 3 wasn't, you know, 100 percent
3 endorsed. I mean, it passed, but it wasn't unanimous,
4 and the Level 2 stuff --

5 MS. DROUIN: But it did pass.

6 MR. HARRISON: It did pass, and then --

7 CHAIRMAN APOSTOLAKIS: It did pass means?

8 MR. HARRISON: It meant that the ASME
9 CNRM, Committee for Nuclear Risk Management, would
10 take the steps to put together a writing team to try
11 to put together a standard for the Level 3.

12 The Level 2 did not pass. It was tabled,
13 as Mary said, but I understand, you know, particularly
14 with all of this stuff going on, right or wrong,
15 there's renewed interest in that, and that may be
16 brought up again.

17 CHAIRMAN APOSTOLAKIS: Level 3 would be
18 required in licensing.

19 MR. HARRISON: Level 3 is used to support
20 the SAMA (phonetic) analysis for the environmental
21 reports for license renewal application.

22 MS. DROUIN: But here's, you know, an
23 interesting one because then you'd have a hole.

24 MR. HARRISON: Right.

25 MS. DROUIN: You have a LERF, and then you

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1 go to a Level 2 standard, but you've got not the
2 remaining part of your Level 2 standards are not
3 there.

4 MR. HARRISON: But what has been pointed
5 out in yesterday's meeting and in today's meeting,
6 that for the most part the components that, you know.
7 Gareth has been talking about don't include the Level
8 2 and the Level 3 in order to be able to proceed with
9 this.

10 So there may not be the urgency, you know,
11 to progress with those as, say, with the fire
12 standard.

13 MS. DROUIN: Correct.

14 MR. HARRISON: And that kind of
15 information needs to be brought back to the STOs to
16 push them in the right direction.

17 MR. PARRY: Okay. I'm going to skip over
18 the next slide because we've already discussed it, and
19 I'll skip over this one, too, because we'll address
20 those later on.

21 What I want to do is to go through the
22 staff and industry activities that we think need to be
23 performed to implement this phased approach, and I'll
24 talk about the staff activities in terms of a number
25 of tasks which, as the moment, they're pretty much

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1 conceptual. They need fleshing out considerably
2 because we really have been concerned more about the
3 philosophy of the approach and defining the phases and
4 what we think it means.

5 And also I think a couple of the tasks
6 have been reversed in order from the draft test plan
7 that you sent out, just to convince you that we're a
8 dynamic team here.

9 Okay. The first action plan task is
10 basically to identify the types of applications. So
11 these are the applications that we're going to be
12 talking about, and we've categorized them. If you
13 remember in the SRM, it talked about binding
14 applications, and I think the way we've interpreted
15 that really is to say for categories of applications
16 that are things like operational uses by licensees,
17 and these are things like to support the maintenance
18 rule.

19 There's the use in the oversight program,
20 and I think where this might have, as I said earlier,
21 a big value is the use of the licensee PRA in Phase 3
22 of the significance determination process.

23 Then there's the license amendments, which
24 is what we tend to, I think, gravitate towards
25 focusing on in a lot of our discussions. We talk

1 about things like risk informed ISI and 5069.

2 And then finally there's the
3 implementation of new rules.

4 DR. ROSEN: Where would you put risk
5 management tech specs?

6 MR. PARRY: It would be a license
7 amendment.

8 MR. HARRISON: It would be a license
9 amendment, yeah.

10 MR. PARRY: The second task is for each of
11 these application types is to identify the guidance
12 document. We should say that for many of them some
13 guidance documents already exist when we have
14 regulatory guides for many applications.

15 But what they don't do in the area of --
16 they're not very explicit in the area of PRA quality,
17 and I think in terms of we could be more explicit
18 about the required scope of the PRA as a function of
19 the existence of guidance documents, such as
20 standards, for example. So we would probably be
21 modifying some of these guidance documents.

22 But in this task what we're going to do is
23 to breach type of application. We identify how the
24 PRA results are used in making the decision and on the
25 basis of that, we talk about defining the scope and

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1 level of detail of PRA required.

2 These are all preliminary tasks to
3 actually doing the real work.

4 The third task is to identify the types of
5 staff activities and define what we need to do to
6 develop the necessary guidance documents, and the
7 types of things we'll have to do, the things like
8 supporting development and endorsement of PRA
9 standards. We already have tasks to do that, but we
10 will have the explicit standards in there.

11 Updates to regulatory guides. Then I
12 talked about that in the last task.

13 One of these guides that we will be
14 updating obviously is Reg. Guide 1.200. We'll
15 probably update that as a result of the pilot studies
16 or the trial use studies, and we'll certainly be
17 updating it when we endorse the other standards as
18 they come in.

19 We will develop methods and develop
20 supporting documents for some of the technical issues
21 that were discussed earlier, and Larry will talk a
22 little later about some of the work that their Office
23 of Research is doing in some of these technical areas
24 and the NUREGs that we think will emerge after that.

25 And we'll also develop -- I think I said

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1 this earlier -- that we're going to have to develop
2 implementation guidelines for the staff to use, for
3 NRR staff to use, in the way that they deal with
4 licensee submittals and how to allocate priorities and
5 the like.

6 The next effort is to try and to find
7 schedules for transitions to Phase 2 as a function of
8 the application type. I think for different
9 applications we'll be transitioning into Phase 2 at
10 different phases because the applications may need a
11 different scope of PRA to support them, and the way we
12 will transition into Phase 2 is when we have endorsed
13 standards for the significant contributors for each of
14 these application types.

15 Now, one of the problems that we have with
16 defining the schedule for transition is it's fine to
17 say that there will be a date, say -- I don't know --
18 March 25th, 2006, when we have endorsed the fire PRA,
19 and we have incorporated into Reg. Guide 1.200. Does
20 that mean on March 26th that we adopt this new
21 approach to review and approval?

22 Well, we think no. We think there has to
23 be some sort of lag time because we know that once we
24 have approved the standard there, the licensees cannot
25 be expected to meet those standards and have the PRA

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1 peer reviewed the next day.

2 So we're building into the schedule some
3 time to allow a lag between our endorsement of the
4 standards and the guidance documents and full
5 implementation of that within the framework that I
6 showed you in those flow charts.

7 DR. ROSEN: Does that mean in that window
8 you would allow applications based on the standard as
9 long as someone could come in and show that they met
10 the standard?

11 MR. PARRY: I think it would mean
12 effectively --

13 DR. ROSEN: I'm thinking about with a
14 proactive licensee who has upgraded his PRA during the
15 standards development process and is ready to go with
16 something he wants to get done just as soon as the
17 standard is voted and endorsed or voted through the
18 standards development organization and endorsed and a
19 reg. guide wants to come in, and you say, "No, because
20 all of that stuff has been done, but you've got to
21 wait two years because" --

22 MR. PARRY: No, that's not what we're
23 saying. I think what we're saying is that up at that
24 point we will tolerate things that haven't gone
25 through the formal peer review process.

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1 DR. ROSEN: For a period of time.

2 MR. PARRY: For a period of time, right.

3 DR. ROSEN: For someone who has been
4 proactive, but may not have been through a peer review
5 yet because he can't schedule it.

6 MR. PARRY: Right.

7 MR. HARRISON: And what I would expect is
8 maybe they would get an REI. If someone did that and
9 the REI would say, you know, between the last version
10 of this endorsement and the one that went on the
11 street there were a few changes, and you say you met
12 the one that was back three months ago. What have you
13 done to bridge the gap?

14 You're going to have to do something like
15 that.

16 DR. ROSEN: Typically you are at
17 diminishing returns. So it wouldn't be a big task.

18 MR. PARRY: Right, right.

19 DR. SIEBER: Yeah, that's right.

20 MR. PARRY: Okay. Task 5 is really where
21 the bulk of our work will be, I think, and that's
22 developing the necessary guidance document.

23 In developing these guidance documents, we
24 think there are a few implementation issues that we
25 have to resolve. They will have, I think, an impact

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1 on the documents we write.

2 One of those is -- and we already
3 discussed it to some extent -- the level of review for
4 licensee submittals depending on, you know, these
5 high, low; do we need a medium priority level of
6 review?

7 So we will have to, I think, discuss that
8 and resolve it.

9 One of the real important things, I think,
10 is the definition of significance contributor as it
11 relates to the regulatory decision because that's
12 really what determines the scope of the PRA that's
13 needed for the particular application. We think this
14 has to be a quantitative type of definition, and you
15 may remember that when we were making comments on the
16 ASME standard, this was one of the issues that we
17 raised then in the context of defining what was a
18 significant accident sequence or a significance basic
19 event.

20 We wanted a quantitative definition that
21 would be easier to audit than the sort of qualitative
22 type of definition, and we think probably that's the
23 way we'll go, but clearly this is at a different level
24 than the accident sequences and the basic events.

25 Another issue I think we have to address

1 is what do we really mean by issuing the document and
2 how does it fit into this whole phased approach of
3 things.

4 DR. ROSEN: You know, we had a discussion
5 of that one time at the ACRS. I mean, I think the
6 discussion as I recall it, devolved down to the point
7 that it meant that the staff had an expectation that
8 it would be revised at some point after some
9 experience.

10 MS. DROUIN: If you go to Reg. Guide 1.200
11 on the second page, there is a paragraph there that
12 was inserted that explains what it means by trial use.

13 DR. ROSEN: What does it say? Can you
14 read it to us?

15 MS. DROUIN: Do you want me to read the
16 whole --

17 DR. ROSEN: Well, read the relevant
18 sections.

19 CHAIRMAN APOSTOLAKIS: The relevant
20 sections.

21 MS. DROUIN: The relevant part.

22 DR. ROSEN: Nothing irrelevant.

23 CHAIRMAN APOSTOLAKIS: The stuff that will
24 affect our decision.

25 DR. ROSEN: Not that anything in the Reg.

1 Guide is irrelevant.

2 MS. DROUIN: This regulatory guide does
3 not establish any final staff positions and may be
4 revised in response to experience with its use. As
5 such, this trial regulatory guide does not establish
6 a staff position for purposes of the backfit rule and
7 any changes to those regulatory guides prior to staff
8 adoption in any final form will not be considered to
9 be backfits as defined in 10 CFR 5109. This will
10 insure that the lessons learned from regulatory review
11 of the pilot applications are adequately addressed in
12 this document and that the guidance is sufficient to
13 enhance regulatory stability in the review, approval,
14 and implementation in the use of PRA results in risk
15 informed activities.

16 DR. ROSEN: When you read the first two
17 sentences I was thrilled because it was my
18 recollection. Then you started reading that stuff
19 about backfitting and I got all kinds of confused.

20 MS. DROUIN: That's what happens when the
21 lawyers write.

22 DR. ROSEN: Regulatory guides are not
23 requirements. So how do you get from talking about a
24 regulatory guide into a backfit?

25 DR. SIEBER: Well, it's even worse than

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1 that because you can adopt this regulatory guide or
2 you can go a deterministic way, and so it's not a
3 requirement because of that, too.

4 On the other hand, if the lawyers want to
5 write it, it didn't hurt a thing.

6 MR. PARRY: But I think the question that
7 we have to answer is how does that roll into our
8 scheduling of when we say we're in Phase 2. If we're
9 still in a trial use phase, I'm not clear how that
10 plays in, and that's something that I think we have
11 more of an impact on our scheduling, I think, that
12 anything else.

13 MS. DROUIN: I think the other question is
14 when it's out for trial use, and I think you've
15 answered it, you know, is it just applicable to the
16 pilots or is it applicable to everybody at large.

17 DR. SIEBER: To everybody. There is an
18 applicability implementation section in there, right?
19 And it doesn't say it was just for the pilot.

20 CHAIRMAN APOSTOLAKIS: But there was a
21 difference between a draft regulatory guide and a
22 guide for trial use, and I don't remember what the
23 difference was.

24 DR. SIEBER: The draft is still in
25 discussion.

1 CHAIRMAN APOSTOLAKIS: The question at the
2 time was why are you issuing Regulatory Guide 1.200
3 for trial use and not as a draft regulatory guide, a
4 DG.

5 DR. SIEBER: Well, there was a DG.

6 MS. DROUIN: It did have a DG.

7 DR. SIEBER: It was 1122 or something.

8 MS. DROUIN: The difference is whether
9 this is a regulatory guide, just those words, versus
10 a regulatory guide for trial use.

11 CHAIRMAN APOSTOLAKIS: Okay. So what's
12 the difference.

13 MS. DROUIN: It's what I read you.

14 MR. HARRISON: Yes, but to get to
15 George's, I think, original question, there was a
16 draft reg. guide, and that was for the purpose of
17 getting --

18 CHAIRMAN APOSTOLAKIS: I remember that.

19 MR. HARRISON: That was to get comment.
20 We went to the comment phase. We got to now being
21 ready to issue a reg. guide, and it was felt that we
22 needed to go through a pilot phase or trial phase.

23 CHAIRMAN APOSTOLAKIS: Yeah, the pilot
24 phase.

25 DR. SIEBER: Trial phase, not a pilot

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1 phase.

2 MR. HARRISON: Right, trial phase.

3 MR. MAGRUDER: And the whole distinction,
4 I think, is really a legal one, and it gets to if a
5 licensee references a reg. guide and a submittal and
6 say they're complying with it, what legal standing
7 that has as far as our review, and then if it's only
8 for trial use and we decide to change it, which is
9 where the backfit stuff gets in there, can we say, no,
10 you don't comply with the reg. guide anymore when they
11 were actually complying with the trial use guide.

12 It's very legalistic, and it probably
13 doesn't matter too much, except that --

14 DR. SIEBER: It actually does matter.

15 CHAIRMAN APOSTOLAKIS: It does matter.

16 DR. SIEBER: It does matter, and you're in
17 the right position, in my opinion.

18 CHAIRMAN APOSTOLAKIS: Because the pilots,
19 I remember, if you have a regulatory guide and you
20 have a pilot program, the pilot plants may do
21 something to their plant as they implement the
22 regulatory guide. then if you go back and say, "No, we
23 don't like what you did," then you have to justify it
24 on the basis of the backfit rule.

25 If it's trial use, you tell them, "No, we

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1 don't like what you did." That was the difference.

2 DR. ROSEN: Yeah, I think I understand
3 that now. The distinction, it helps to have you talk
4 about that. The key step that I wasn't thinking about
5 was when the licensee takes the reg. guide and makes
6 a commitment to it.

7 CHAIRMAN APOSTOLAKIS: Right.

8 DR. ROSEN: Then it becomes no longer
9 voluntary. It's voluntary to make the commitment, but
10 once you make the commitment, you've got to meet it.

11 MR. MAGRUDER: Yes.

12 CHAIRMAN APOSTOLAKIS: Okay.

13 MR. PARRY: Task 6 is developing the Phase
14 3 guidance, and I won't say any more about this other
15 than the fact, as I said earlier, I really think this
16 is just establishing a regulatory framework that rolls
17 up all of the quality requirements on PRAs into one
18 document. Otherwise Phase 3 is sort of like Phase 2.

19 DR. SIEBER: So would this be a revision
20 to 1.200, this Task 6?

21 MR. PARRY: Maybe not a revision. Maybe
22 an interpretation for all of the applications perhaps.

23 MR. HARRISON: Yeah, I could see maybe a
24 table or something like that being added to Reg. Guide
25 1.200 that would say, "Here's the application. Here's

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1 the requirements for each of these applications."

2 DR. SIEBER: Here's the phase you should
3 be in.

4 MR. HARRISON: Right.

5 MR. PARRY: Yeah, I think so.

6 DR. SIEBER: All right.

7 MR. PARRY: Task 7, we put this in.
8 Buried in the white paper there is an expectation that
9 we would do continued ad hoc monitoring of PRA quality
10 using things like the -- specifically mentions using
11 things like the SPAR models and the SDP notebooks.

12 We do this now. When you heard this
13 morning that we did a lot of the ID of the SDP
14 notebooks against the licensee's PRAs, which meant
15 going out to the sites, doing comparisons, and by that
16 way not only were we revising the notebooks; we were
17 also understanding the differences.

18 And in understanding some of those
19 differences then, in fact, in a couple of cases there
20 were some problems identified with the licensee's
21 PRAs. So it's not a rigorous process, but it is a
22 process by which we at least get some feeling about
23 what the PRA looks like.

24 And the same way we did the ID for the
25 SPAR models. Pat O'Reilly is here in the background,

1 and he could probably talk more about that, but in
2 effect it is the same type of thing. Do a comparison
3 of the SPAR model results with the licensee model
4 results and, again, try and understand the differences
5 which focuses in on those issues that can then drive
6 the differences between the results.

7 So we will just keep on doing this type of
8 thing, I think, as opportunities arise. We do a lot
9 of this when we're doing things like SDP Phase 3
10 reviews because the licensee produces an analysis to
11 support his claim that it's a green finding, not a
12 white finding or whatever.

13 And then we would look further into that
14 and somehow learn something about the PRAs, but it
15 really is not a formal process, and it can never
16 replace the type of thing we're envisaging with the
17 phased approach.

18 And I think this whole activity should
19 eventually become somewhat moot as we transition to
20 Phase 3 because by that time we should know pretty
21 much what we need to know or at least we would have
22 access to knowledge about the licensee's PRA to
23 sufficient detail that we can figure out what's in
24 there.

25 DR. FORD: How much are these seven tasks

1 dependent on input from the licensee?

2 MR. PARRY: I think --

3 DR. FORD: I notice on Task 4 you have got
4 a specific --

5 MR. PARRY: The schedule, for sure. The
6 schedule, for sure, but I think also I think Task 5,
7 developing the guidance because again, for example,
8 one of the elements of developing the guidance is
9 reviewing the standard.

10 DR. FORD: So if they don't produce on
11 time to the amount expected, does the whole project
12 crash?

13 MR. PARRY: No, it becomes a smaller
14 scope, I think. There will be some things we can do
15 early on for certain applications. I think for the
16 more ambitious application that require full scope
17 PRAs, that's where we would intend to be not
18 transitioning to Phase 2.

19 DR. FORD: Okay, okay.

20 MR. PARRY: So for the industry activities
21 that we need -- that need to be done. Well, first of
22 all, what we've been talking about is developing the
23 consensus sentence, and the two that are on the books,
24 and they both have 2005 dates on them, I believe, and
25 that's the low power and shutdown PRA and the fire

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1 PRA, although I'm hearing rumors that maybe the fire
2 PRA is getting pushed back a little bit, although I'm
3 not really sure.

4 The other thing that the industry may
5 do --

6 CHAIRMAN APOSTOLAKIS: What happened to
7 the seismic? Is there a seismic?

8 MR. PARRY: It stopped.

9 MS. DROUIN: It's out.

10 MR. PARRY: It's out. We're reviewing it
11 right now. It's being published by ANS in December.

12 MS. DROUIN: December.

13 MR. PARRY: Last year. That's seismic,
14 high winds and other external events. It's all
15 together.

16 The other thing that the industry can do
17 is to develop guides for specific applications, and a
18 good example of this is NEI 00.04 for 10 CFR 5069. In
19 that case if the industry were to develop the guide,
20 then what we would have to do is develop a reg. guide
21 or some other means of endorsing that guidance.

22 There is also another IOU from the
23 industry which is the update of NEI 00.02, which is,
24 in particular, the self-assessment process part of
25 that document because we have commented on that in

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1 Reg. Guide 1.200, and I think the NEI promised to
2 update that document, and that's really crucial; is
3 that right, Biff?

4 MR. BRADLEY: Yeah, we were just waiting
5 for the target to quit moving on the 1.200. The
6 answer is yes. We will --

7 MR. PARRY: It stopped, until Addendum B
8 of the ASME standard.

9 DR. ROSEN: It makes it very easy shooting
10 at a still target though.

11 MR. PARRY: All right. So those are the
12 major things, I think, that we have identified. Okay.
13 I'm going to hand over to Mary on this slide, but
14 before I do so, you know the other thing that the SRM
15 asked us to do was address the resolution of technical
16 issues, and what I've been talking about primarily is
17 developing the plan for implementation, the phased
18 approach. I think what the plan will do is point at
19 certain other activities which probably would not be
20 done under this plan necessarily. They would be done
21 independently, and I'll let Mary talk about those.

22 MS. DROUIN: The ones we have listed here
23 were the ones that were specifically mentioned in the
24 SRM. There could be more, you know, as we go forward
25 and identify other technical issues, but these were

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1 the three that were mentioned explicitly in the SRM,
2 you know, was model uncertainty.

3 And for all of these that were mentioned,
4 there's ongoing research activities to address them.
5 We've gotten a slow start, and I wasn't going to go
6 into detail because I know that some time we're going
7 to come back to the ACRS and talk into detail on each
8 one of these, but the point is just to make that we do
9 have activities underway looking at the model
10 uncertainty.

11 I will admit we've gotten a slow start on
12 that, which is not necessarily a bad thing because
13 it's going to give us a better opportunity to interact
14 with industry and other programs that are ongoing.

15 On the seismic and external events, I put
16 two bullets there because there's kind of two aspects
17 to this. There is the ANS standard that's out there.
18 It's out there under review. We hope to have a
19 preliminary staff position to go out for public review
20 and comment this summer and to have a final staff
21 position by the end of this calendar year.

22 But also part of this other work that
23 we're doing, and we had envisioned it to be in the
24 same document with the treatment of uncertainties
25 because it kind of all works together, is, you know,

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1 the bounding analysis.

2 You all had come back to us and said, you
3 know, when you look at Reg. Guide 1.174, you look at
4 the standards, you look at Reg. Guide 1.200, and they
5 all allow you to do other things, such as a bounding
6 analysis, such as sensitivity, and there wasn't
7 guidance out there.

8 We admitted, yes, there wasn't, and we
9 would write some guidance. This becomes, I think,
10 particularly important under the seismic because when
11 you look at your bounding analyses, you can look at it
12 at three different ways: bounding on the scope level
13 where you do something so that you can show that the
14 scope is not important, and then once you get into the
15 scope, whether the technical element is not important,
16 and then within the technical element, maybe a
17 specific requirement is not important.

18 So it's looking at those three levels, but
19 right now our priority is to look at these kind of
20 analyses for screening at the scope level.

21 On the human performance, you know,
22 there's a lot of work going on in the Office of
23 Research. The one I listed there I thought was the
24 most relevant as it fits into this issue of PRA
25 quality.

1 There is the document that is, you know,
2 a handbook on good practices that is to support the
3 ASME standard.

4 So that's kind of a nutshell.

5 DR. ROSEN: A snapshot in time. It's
6 really a snapshot in time, and my comment is about as
7 a process the fact that you're always going to have
8 technical issues to resolve. It's just something you
9 need to anticipate. It won't be this same set.

10 MS. DROUIN: That's right.

11 DR. ROSEN: But it will always be true.

12 MS. DROUIN: That's absolutely correct.
13 i mean, we talk about this all the time. You know,
14 what other issues do we think are coming up that we
15 feel like we need guidance no?

16 CHAIRMAN APOSTOLAKIS: Isn't the human
17 performance issues a major model uncertainty case?

18 MS. DROUIN: Absolutely.

19 CHAIRMAN APOSTOLAKIS: Gareth, what did
20 you say about finishing these? You said something
21 before you turned it over to Mary.

22 MR. PARRY: About finishing these? Did I?
23 What did I say?

24 CHAIRMAN APOSTOLAKIS: You said they were
25 not part of the plan or something?

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1 MR. PARRY: Oh, no, no, no, no, no. I
2 mean I think they're going to be dealt with under
3 separate projects because most of these are going to
4 be done in the Office of Research.

5 MS. DROUIN: For example, George, the
6 plant is not going to come in and give schedules and
7 milestones for how these technical issues are going to
8 be treated as this is already being done under
9 separate ongoing activities which have their own
10 schedule, their own milestones.

11 CHAIRMAN APOSTOLAKIS: Yes, but if I look
12 at the block diagrams that Gareth showed us, if I'm in
13 Phase 2, for example and going strictly by the flow
14 diagram, all I need is standards.

15 MR. PARRY: Yeah.

16 CHAIRMAN APOSTOLAKIS: But I don't
17 necessarily need to have something on these issues.

18 MR. PARRY: Not necessarily, but let me --

19 CHAIRMAN APOSTOLAKIS: But that would
20 really invalidate, it seems to me. Even in Phase 1 if
21 you're dealing with an issue that is a significant
22 model of uncertainty, you have to do something about
23 it.

24 MR. PARRY: Right.

25 CHAIRMAN APOSTOLAKIS: It's independent of

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1 any phased approach to PRA, it seems to me.

2 MR. PARRY: It's true, but I think we have
3 some guidance on how to deal with model uncertainty
4 and decision making, but it's very high level
5 guidance. I think what Mary is thinking about is
6 developing something that's a little more concrete.

7 CHAIRMAN APOSTOLAKIS: Right.

8 MR. PARRY: All I was saying is it's not
9 like we're unable to cope with these right now, but we
10 might be able to do better, and let me give you an
11 example again on the human performance issue on this
12 NUREG on good practices. All right?

13 There's two purposes for that document I
14 had. One is to be a source document that would enable
15 one of our reviewers to really understand a little bit
16 more about what goes into doing an HRA and be a way of
17 phrasing more pertinent REIs, for example.

18 But the other use that's going to be made
19 of this document is as a basis document for reviewing
20 the HRA methods that are out there, which is something
21 that you, I think, have particularly lobbied for.
22 That's not going to be --

23 CHAIRMAN APOSTOLAKIS: Argued.

24 MR. PARRY: Argued. Okay.

25 It's not going to be done immediately, but

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1 I think ASME is going to be here in a month or so to
2 talk about that issue.

3 CHAIRMAN APOSTOLAKIS: But my point is
4 that this activity on these three issues and maybe
5 others alter should be the number one priority, should
6 it not? Regardless of which phase I'm in, I'm really
7 at a loss how to handle some of these things.

8 I mean you probably can do something about
9 model uncertainty, but I haven't seen really a PRA
10 where people actually addressed it. You know, nobody
11 said that if I used somebody else's model I get
12 something different.

13 DR. ROSEN: This truly the moving target
14 that NEI was talking about. Model uncertainty, how to
15 handle it in a common practice PRA at the moment is
16 well beyond because you don't know what you're trying
17 to do.

18 MR. PARRY: Yeah, but I don't think you
19 necessarily handle it in the PRA itself. You
20 recognize where your model uncertainties are and then
21 you assess what the impact on the decision is.

22 CHAIRMAN APOSTOLAKIS: Okay. If somebody
23 does that, I'll be very happy, but --

24 MR. PARRY: I believe that's what people
25 should be doing.

1 CHAIRMAN APOSTOLAKIS: Yes.

2 MR. PARRY: Okay, and I think people will
3 do that.

4 DR. ROSEN: Let's talk about the principal
5 model uncertainty we've all talked about so far, which
6 is RCP seal LOCA. Would this document give us
7 alternative ways that one must test your RCP seal?
8 You know, if you have a PRA and you have a model in
9 there, will it tell us, yeah, that's Item No. 2, but
10 you also have to run your model over again with Models
11 No. 1, 3, 4 and 5 and see what the spread looks like?

12 MR. PARRY: Or maybe not even run it over,
13 but maybe understand what the significance of it is
14 and see if it is a good model.

15 CHAIRMAN APOSTOLAKIS: Yeah, let's no
16 prejudge the issue, but basically --

17 DR. ROSEN: I'm trying to get at how meaty
18 is this going to be.

19 MR. HARRISON: And if I could jump in on
20 at least the reactor coolant pump seal modeling part
21 of that, that's an issue that goes on in reviews right
22 now, and typically a licensee may submit something,
23 and they have a model and they'll get an REI that
24 says, "What model are you using for this and why
25 should we believe the model that you're using is the

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1 right model?"

2 Currently what then happens a lot of times
3 is we'll then ask them to run the Rhodes model
4 (phonetic) to give us a feel for how did the answer
5 change if you used a different model, and if there's
6 not a substantial change, then we may say, okay,
7 that's fine for this application.

8 And that's how it's done pretty much now,
9 and we've also got a couple of topical that we've
10 reviewed and approved. Well, one that we've approved,
11 and there's a topical that's in house right now for
12 CE, the owners group that --

13 DR. ROSEN: Well, it would be terrifically
14 helpful for somebody who is entering this discussion
15 for them to have the list of things you're going to
16 ask them ahead of time so that he can tell his people
17 who are doing the modeling here is your test for this
18 month. Run all of these.

19 CHAIRMAN APOSTOLAKIS: In some instances
20 that's really impractical because if you want to do
21 the same thing in HRA, whoa, now you're asking them do
22 ATHENA; do MERMOS; do IDA.

23 They're going to say to hell with you.
24 I'm going to stick with traditional deterministic.

25 MR. PARRY: No, no, no, but I would say --

1 CHAIRMAN APOSTOLAKIS: Yeah, I mean geez.

2 MR. PARRY: But I would say there's enough
3 guidance in the ASME standard to actually at least
4 identify the appropriate human failure events in the
5 model because it doesn't require currently that we do
6 ours --

7 CHAIRMAN APOSTOLAKIS: The events I agree.
8 It's the quantification.

9 MR. PARRY: Well, the quantification, none
10 of those --

11 CHAIRMAN APOSTOLAKIS: Anyway, these
12 NUREGS will address these issues.

13 MR. PARRY: Yes.

14 CHAIRMAN APOSTOLAKIS: First of all, I
15 believe it is a similar situation in my mind with
16 about 20 years ago with the errors of commission and
17 everybody was saying, "My God, the errors of
18 commission, oh, errors of commission."

19 Then somebody publishes this simple table
20 that says, you know, which initiating events can be
21 confused, the confusion matrix, which sheds so much
22 light into it.

23 So there are very few, like steam
24 generator tube rupture. You would think it's a small
25 LOCA, and all of a sudden there was so much

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1 understanding.

2 So if, for example, your effort on model
3 uncertainty and EPRI's effort comes back and says in
4 Level 1 PRA the model uncertainties that really could
5 matter are, and there is only three of them, wow, all
6 of a sudden we all say, "Gee, that's great."

7 Eleven, two, of course, is a different
8 story.

9 So even those small steps, I think would
10 be very useful. Then you take each one and in the
11 seal LOCA case perhaps there are two models that you
12 judge to be extreme, and you say do both of them or
13 something. In the HRA I don't know how you're going
14 to do that though because it's a different beast, and
15 I appreciate the difficulty.

16 MR. PARRY: Yeah, the way we do it now, I
17 think, is to recognize that those -- that to try and
18 construct methods that at least rank the HEPs in an
19 appropriate manner and then recognize that the values
20 are going to be uncertain and to make sure that the
21 decision --

22 CHAIRMAN APOSTOLAKIS: Well, my questions
23 when we were reviewing the power up rates, I mean, we
24 used the model and the human error probability was
25 three, ten to the minus three, but that was assuming

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1 that there were 42 minutes available, and it went down
2 to 39 minutes. So it becomes one and a half, ten to
3 the minus three.

4 That drives me up the wall, you know.

5 MR. PARRY: Yeah, me, too.

6 CHAIRMAN APOSTOLAKIS: They use a model
7 that I cannot review because it's EPRI proprietary,
8 and they ignore also all sorts of other models.

9 So this is the kind of thing we need to
10 avoid, I think, and in that case a qualitative
11 argument would have been good enough actually, you
12 know, 42 to 39.

13 MR. PARRY: Yeah, zero, yeah.

14 CHAIRMAN APOSTOLAKIS: So but my point is
15 that the resolution of these issues really should take
16 the highest priority because they are applicable to
17 all phases of the proposed plan.

18 MR. PARRY: Yeah, but it depends on what
19 you mean by resolution though because I think you
20 can --

21 CHAIRMAN APOSTOLAKIS: Well, a
22 recommendation is what to do.

23 MR. PARRY: Right. If you can construct
24 your decision algorithm to recognize these sources of
25 uncertainty --

1 CHAIRMAN APOSTOLAKIS: Then do something
2 about it, yeah.

3 MR. PARRY: -- then I think you can do it.
4 But we can make better decisions by refining those
5 things.

6 CHAIRMAN APOSTOLAKIS: Yeah, so I would
7 say this is important to decision making, and maybe
8 some decisions do not rely much on these, but maybe
9 others do, and then, of course, there is a fourth
10 bullet that's missing since you're talking about
11 decisions.

12 DR. ROSEN: Safety culture.

13 CHAIRMAN APOSTOLAKIS: Exactly. I'm
14 sorry. I'm sorry. I can apply all of these to Davis-
15 Besse, everything, and come up with a ten to the minus
16 five core damage frequency, and then what? Then I
17 almost have a lock.

18 The truth of the matter is that we are
19 leaving out an extremely important aspect of plant
20 operations, and we're focusing on things that we
21 understand and we will deal with. We can deal with
22 immediately.

23 As far as I'm concerned, the Regulatory
24 Guide 1.174, the integrated decision making process
25 should -- how many inputs does it have now? I think

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1 five.

2 MR. PARRY: Five, yeah.

3 CHAIRMAN APOSTOLAKIS: There should be a
4 sixth one related to some sort of cultural something.

5 DR. ROSEN: Crosscutting issues.

6 CHAIRMAN APOSTOLAKIS: Something, and yet
7 we consistently ignore it, and that will do us in.
8 Oh, my God, what did I say? No, that was a moment of
9 -- I take it back.

10 But really, I mean, look at it, and the
11 first time it came from you guys, you, the staff.
12 Years ago I remember Oyster Creek had just been put on
13 the watch list, and a week later they submitted a PRA.
14 The staff looks at the core damage frequency and say,
15 "How can that be?"

16 It's the same as any other BWR in the
17 country, and we just put them on that list. How good
18 are these PRA? Was the question ever answered? No.

19 So, I mean, to worry about seismic events
20 which have a ten to the minus six probability of
21 occurring just because there is a whole community out
22 there of seismic engineers and ignore this thing which
23 happened a year and a half ago, I mean, it seems to me
24 that doesn't make sense at all.

25 DR. ROSEN: Let me associate myself with

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1 your remarks, George, with regard to the importance of
2 safety culture in the crosscutting issues, but not
3 with regard to the need to incorporate them into the
4 PRA. I'm not sure that's an essential piece of it.

5 CHAIRMAN APOSTOLAKIS: No, but the
6 integrated decision making process, I would like to
7 see an input that says have you considered that. We
8 have to consider sufficient safety margins, defense in
9 depth philosophy, delta for CDF, and the monitoring
10 problem, and all I'm saying is put a sentence in there
11 that says think about this other thing, too.

12 MR. PARRY: But, George, now you're
13 migrating towards decision making though, which is a
14 little --

15 CHAIRMAN APOSTOLAKIS: Because you said
16 decision making. That was an excellent document, and
17 then somewhere else here you say that the -- didn't
18 you say that the issue must be relevant to the
19 decision?

20 MR. PARRY: Yeah.

21 DR. SIEBER: I think that Davis-Besse
22 taught us one other thing about PRAs. PRAs really
23 don't handle aging effects for materials degradation.

24 PARTICIPANTS: Right.

25 DR. SIEBER: Since I'm on the Metallurgy

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1 Subcommittee I thought I should say that, but there is
2 an important series of phenomena that degrade and
3 change the risk of --

4 DR. ROSEN: Well, we've now identified two
5 important things that are not in PRA, safety culture
6 and materials degradation. The question is: should
7 we insist that they be in PRAs?

8 My answer to that is no. My answer to
9 that is we're asking too much of this horse. We have
10 already loaded it down with everything we can think
11 of. This poor little donkey can hardly stand anymore.

12 DR. SIEBER: You know, on the other hand,
13 when you go to do a license renewal application
14 approval, you look at the PRA, and the PRA says
15 everything is fine, but the PRA doesn't deal with any
16 aging phenomena.

17 DR. KRESS: I didn't realize that we
18 looked at the PRA at license renewal.

19 DR. SIEBER: It's in there.

20 CHAIRMAN APOSTOLAKIS: At license renewal
21 we don't look at it.

22 MR. HARRISON: Yeah, it's actually only in
23 the environmental.

24 DR. SIEBER: If we do it, we don't make a
25 comment on it.

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1 DR. ROSEN: My comments are not to say
2 that either safety culture or materials degradation
3 are unimportant. They are critically important, but
4 putting them on PRA is too much for PRA.

5 DR. SIEBER: Well, it's hard to do.

6 CHAIRMAN APOSTOLAKIS: They should be part
7 of the integrated decision making process.

8 DR. SIEBER: That is true.

9 DR. KRESS: However, that means you need
10 some quantification of their effect on CDF and LERF.

11 CHAIRMAN APOSTOLAKIS: Well, the aging you
12 can do.

13 DR. KRESS: Well, I know, but if you're
14 going to factor it into your decision and your
15 decision process is looking at things like CDF and
16 delta CDFs, which it --

17 DR. ROSEN: Well, it also looks at defense
18 in depth.

19 DR. ROSEN: The decision process uses CDF
20 and LERF as one input. It's risk informed. It's not
21 the only one.

22 CHAIRMAN APOSTOLAKIS: That's why I'm
23 saying you should be a sixth box, maybe a seventh as
24 well to satisfy Peter.

25 MR. SNODDERLY: George, what I'd like to

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1 suggest is that at the end of this meeting I'm going
2 to hand out a status report for a meeting that we're
3 going to have next Thursday on risk informing 5046,
4 and in that in -- the status of the expert
5 solicitation that has taken place -- and in that
6 expert solicitation they do address safety culture and
7 materials degradation as part of the expert
8 solicitation. I think you'll find it interesting.

9 CHAIRMAN APOSTOLAKIS: I'd love seeing it.

10 MR. SNODDERLY: So my suggestion is take
11 a look at how the staff addressed those two issues for
12 that specific application and it will give you
13 something to --

14 CHAIRMAN APOSTOLAKIS: But I guess the
15 bigger question is if we look at this SRM, and let's
16 say it's implemented, Phase 1, 2, 3 and so on. Are we
17 leaving out some important stuff from our decision
18 making process, not on PRA; from our decision making
19 process?

20 Yes, we are. Now, this SRM really
21 addressed the PRA, the PRA quality. So you might say
22 something about the aging, but it's not really -- I
23 mean, you can do that separately, too. It's a
24 different time scale.

25 MS. DROUIN: Well, I think one of the

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1 things that we can do is, you know, we're up to what,
2 seven tasks? And instead of having this discussion on
3 the technical issues separate, that one of the tasks
4 should be to look at as we go through the phases, as
5 we implement the various guidance documents, you know,
6 what are the technical issues and are they being
7 addressed.

8 I mean, that is part of our process.

9 CHAIRMAN APOSTOLAKIS: Yeah. I think the
10 technical issues should be in every phase, and by the
11 way, I don't know. I mean, when you say human
12 performance, it's affected a lot by the culture.

13 DR. ROSEN: Oh, of course.

14 MS. DROUIN: And hopefully an answer to
15 when we notice them is that we can then go out of the
16 plan, say these are being addressed under these other
17 programs.

18 DR. ROSEN: But the human performance
19 that's the PRAs now is the operator performance.

20 CHAIRMAN APOSTOLAKIS: Yes.

21 DR. ROSEN: And the safety culture issue
22 is much broader than just operator performance.

23 MS. DROUIN: Oh, yes.

24 DR. ROSEN: It's maintenance people
25 performance, technical people's performance,

1 executives' performance.

2 CHAIRMAN APOSTOLAKIS: That's right.

3 DR. ROSEN: It's the whole performance and
4 the performance of these people in teams, a point that
5 we've made before in letters to the Commission, that
6 the performance of people in teams both in the control
7 room and outside the control room are elements of the
8 safety culture.

9 MR. HARRISON: And if I could just maybe
10 add a thought. A lot time ago when I first started
11 this, one of the -- and I've said it in our
12 organization a couple of times -- an underpinning of
13 the PRA is the plant is operating according to its
14 procedures and its programs, and if those aren't true,
15 then the underpinning of the PRA is not true.

16 And so to address the safety culture, to
17 address even aging, you do that through other programs
18 that establish a base and make sure that, if you will,
19 your PRA is okay above that.

20 CHAIRMAN APOSTOLAKIS: Actually, issues --
21 well, it depends on how you interpret safety culture.
22 I mean, some people interpret it as attitudes of
23 people and values and so on. Other people, I think,
24 including the insight reports, they include
25 organizational structures and so on.

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1 But wasn't there a case from actual
2 experience where organizational screw-ups led to
3 initiators?

4 PARTICIPANTS: Sure.

5 CHAIRMAN APOSTOLAKIS: We lost 9,000
6 gallons of water in one plant because they postponed
7 work on Friday to Monday without informing people.

8 DR. ROSEN: Well, the tragic history of
9 the space shuttles.

10 CHAIRMAN APOSTOLAKIS: Well, nuclear.

11 So you might ask yourself, you know, is
12 our list of initiating events complete if we don't
13 look at these things, which is really a PRA issue.

14 MR. PARRY: It is a PRA issue, but I think
15 also we cannot predict or even identify things that we
16 don't know about.

17 CHAIRMAN APOSTOLAKIS: Well --

18 MR. PARRY: You really can't.

19 CHAIRMAN APOSTOLAKIS: We don't know about
20 them because we're not looking at it. It's amazing.
21 I mean that's what they told Erasmus and Levine when
22 they started this thing. I mean, both of them told
23 me, said they were very distinguished people in this
24 industry who told us we were crazy. Both Saul Levine
25 and Norm Erasmus told me that, that this could never

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1 be done. WASH 1400 could never be done.

2 So, you know, unless you look into
3 something and try it you cannot prejudge, but again,
4 let me understand something because it's important.

5 The resolution of these issues is part of
6 the plan or not?

7 MS. DROUIN: No, I'm saying identification
8 of the issues, a step of going through and noting in
9 the plan that we have an explicit step to look for
10 technical issues I think should be part of the plan

11 CHAIRMAN APOSTOLAKIS: And I agree.

12 MR. PARRY: And how they factor in.

13 MS. DROUIN: Yes.

14 CHAIRMAN APOSTOLAKIS: And right now it's
15 not, right?

16 MS. DROUIN: We don't have an explicit
17 task that says that.

18 CHAIRMAN APOSTOLAKIS: In what you
19 presented, it was not there.

20 MR. PARRY: It was not.

21 CHAIRMAN APOSTOLAKIS: And you agree that
22 it should be there.

23 MR. PARRY: As a link. I mean, in the
24 broader plan --

25 CHAIRMAN APOSTOLAKIS: Yeah, but --

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1 MR. PARRY: -- we have to do all of these
2 things. We have to explain how these things get in.

3 CHAIRMAN APOSTOLAKIS: You don't seem to
4 acknowledge though that there is more urgency to this
5 than the plant.

6 MR. PARRY: I'm not sure.

7 CHAIRMAN APOSTOLAKIS: I think there is
8 more urgency to this because we're actually making
9 decisions now using risk informed, of course. I
10 agree, but what is the risk information?

11 MR. PARRY: I'm not sure that it's more
12 urgent. I think in a sense what all of these
13 activities will do -- what we have to do right now is
14 to accept the fact that there are in some places large
15 uncertainties, and we have to make those decisions
16 despite that.

17 CHAIRMAN APOSTOLAKIS: But didn't you give
18 people a little bit of guidance? Couldn't you give
19 them some guidance, what to do? I mean you don't have
20 to solve the issue, but say, "Look. In this
21 particular case, recognize there is model uncertainty
22 and here is what you can do right now, and work is
23 continuing."

24 MR. PARRY: Yeah, but that's within the
25 realm of the decision making process.

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1 CHAIRMAN APOSTOLAKIS: Absolutely.

2 MR. PARRY: The plan that we have does not
3 really address that.

4 CHAIRMAN APOSTOLAKIS: But in Phase 3 you
5 say that it will be applicable to all anticipated
6 applications. Therefore these issues must have been
7 resolved by then.

8 MR. PARRY: But what that does, the way it
9 feeds back though, I think, is you look at what the
10 decision making process is. What does it require?
11 Does it require CDF? Does it require LERF? Does it
12 require uncertainly analysis?

13 That feeds back into requirements on the
14 PRAs, which is already in the standard in the sense
15 that what the standard says is you have to identify
16 the key sources of uncertainty and be able to assess
17 their significance.

18 CHAIRMAN APOSTOLAKIS: You're talking at
19 a very high level about it. I'll tell you what. If
20 people applied 1.174, paying serious attention to all
21 of the discussion and uncertainty, we would have no
22 problem right now. I think the only guy who has read
23 it is you because you wrote it. And whether you
24 proofread it --

25 (Laughter.)

1 CHAIRMAN APOSTOLAKIS: I mean, there is
2 beautiful stuff there that nobody does.

3 DR. BONACA: We have a meeting and don't
4 read it.

5 CHAIRMAN APOSTOLAKIS: He told me about
6 it.

7 Anyway, any other comments? Well, we will
8 go around the table to give me advice regarding the
9 letter.

10 MR. PARRY: We haven't quite --

11 CHAIRMAN APOSTOLAKIS: You're not done?

12 MR. PARRY: I have two or three slides.

13 CHAIRMAN APOSTOLAKIS: Okay. Run through
14 your slides.

15 MR. PARRY: There may be only one more
16 slide.

17 DR. ROSEN: We're getting into the slide
18 quality issue.

19 MR. PARRY: The next steps then, and as
20 was pointed out to me yesterday, too, I ought to
21 reverse the first two bullets and get the stakeholder
22 comments first before finalizing the plan, and then
23 we'll send it to the Commission in July, and we have
24 a slide here with two potential policy issues, which
25 we have discussed.

1 One was this famous Box 5 leading into Box
2 6, and the other one was whether we would expect or
3 whether the Commission expects the licensees to go
4 into Phase 3 if they want to play in the risk informed
5 regulatory arena.

6 And then the final slide is what we want
7 to discuss with you really. We're going to revise the
8 plan in response to stakeholder comments, and we
9 don't --

10 MS. DROUIN: And ACRS.

11 MR. PARRY: Well, they're stakeholders.

12 PARTICIPANT: A major stakeholder.

13 MR. PARRY: Now, we need to return to you
14 guys to request a letter on this.

15 CHAIRMAN APOSTOLAKIS: In April.

16 MR. PARRY: But we're set for April, but
17 by April the 15th, we will not have revised this plan
18 to the level that we want to revise it.

19 CHAIRMAN APOSTOLAKIS: So?

20 MR. PARRY: So you could either give us a
21 letter on the concept on the 15th --

22 CHAIRMAN APOSTOLAKIS: On what we have
23 heard today?

24 MR. PARRY: Of what you have heard today
25 or --

1 CHAIRMAN APOSTOLAKIS: Or?

2 MR. PARRY: -- we could wait until we've
3 got a more complete plan and we can come back to you
4 in May perhaps, if that's possible.

5 CHAIRMAN APOSTOLAKIS: One mitigating
6 factor is that we are meeting with the Commission in
7 May, and one of the items we're discussing with them
8 is RPA SRM quality, and the committee is usually very
9 reluctant to trust one member to talk about something
10 unless there is an official ACRS letter, in which case
11 a member, of course, follows the letter.

12 So if we don't write a letter in April,
13 we're complicating everybody's life.

14 MR. PARRY: But the letter in April will
15 be on a -- must be on a -- yeah, it can only be on --

16 CHAIRMAN APOSTOLAKIS: It must be on a
17 high level staff, and it can also say things that you
18 have already decided to change. That's the problem
19 when you write a premature letter. So we have to
20 discuss this with the leadership of the committee.

21 DR. ROSEN: Well, two out of three of us
22 are here.

23 CHAIRMAN APOSTOLAKIS: It's a very easy
24 thing. Just let me speak and --

25 DR. ROSEN: That's right, George.

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1 (Laughter.)

2 DR. ROSEN: My feeling is we should write
3 a letter, Mario, write a letter that talks about our
4 view of it right about now and put George in irons and
5 tell them give him a copy of the letter.

6 CHAIRMAN APOSTOLAKIS: "Now, read."

7 DR. ROSEN: One to read and one to eat.

8 DR. SIEBER: Could you come up with a
9 draft by tomorrow morning?

10 CHAIRMAN APOSTOLAKIS: I understand the
11 Chairman though has approved.

12 Well, if we don't have to meet with the
13 Commission, then I think it's a good idea to postpone
14 the letter.

15 DR. ROSEN: Is there a really serious
16 potential that we won't have a meeting with the
17 Commission?

18 CHAIRMAN APOSTOLAKIS: As far as I know,
19 he's going to be there. I think we have to have a
20 letter.

21 DR. KRESS: I think they'll leave this one
22 on there.

23 DR. ROSEN: And if we have a meeting --

24 DR. KRESS: Because they're very
25 interested in our view.

1 CHAIRMAN APOSTOLAKIS: No, but look.

2 DR. ROSEN: Well, I don't feel comfortable
3 at all going to that meeting without having put
4 something in the letter. I think they can say to us
5 if we don't do that --

6 DR. SIEBER: This time maybe they want the
7 comments more than the original letter.

8 DR. ROSEN: -- where are you?

9 CHAIRMAN APOSTOLAKIS: Why can't the
10 committee come up with three or four bullets in full
11 session without writing a letter and we present the
12 Commission the bullets?

13 DR. ROSEN: That's not the way we do
14 business though.

15 DR. KRESS: We can do that.

16 CHAIRMAN APOSTOLAKIS: Well, we can always
17 start now.

18 DR. KRESS: We can do that. It can be a
19 committee position if we agree on it.

20 DR. BONACA: Yeah, we have time on the
21 agenda to discuss what's going to be in these
22 presentations in detail. We definitely are going to
23 prepare the overheads, right?

24 DR. ROSEN: Mario, do you feel comfortable
25 about trying to come up with bullets or something like

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1 that without a letter?

2 DR. BONACA: Well, right now it seems to
3 me that we should be able to generate a letter
4 anyway.

5 DR. KRESS: Well, the way we would come up
6 with the bullets is the same process we use to come up
7 with the letter.

8 DR. ROSEN: That's right.

9 DR. KRESS: And all we do is vote on it.
10 I don't see any problem.

11 CHAIRMAN APOSTOLAKIS: Yeah, but the
12 letter requires to go over it line by line and the
13 discussion and all of that. With the bullets you go
14 line by line and you have only 12 lines, and then they
15 can be turned into a latter later.

16 DR. KRESS: That was my point.

17 DR. ROSEN: A letter later, yeah.

18 DR. KRESS: And it's equivalent.

19 CHAIRMAN APOSTOLAKIS: Yes, John.

20 DR. SIEBER: it seems to me that we know
21 enough to write a general purpose letter right now or
22 at least for the next meeting as opposed to coming up
23 with a committee position, writing a letter later, and
24 ending up the letter saying something different than
25 what the committee position was.

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1 CHAIRMAN APOSTOLAKIS: It won't say
2 anything different because if we have bullets, we will
3 have big letters, preliminary whatever, thoughts or
4 conclusions.

5 DR. ROSEN: I think we've had --

6 CHAIRMAN APOSTOLAKIS: Well, the letter
7 will say the same thing because we will not have seen
8 the final --

9 DR. ROSEN: We can write a brief now. We
10 need a letter draft for the full committee meeting in
11 a couple of weeks.

12 DR. BONACA: Let me give you my
13 impression. Okay? We went from an SRM which at the
14 beginning puzzled us. I mean everybody interpreted it
15 somewhat. I believe we have here a plan that to me is
16 a good interpretation of the SRM.

17 DR. SIEBER: Yes.

18 DR. BONACA: And also gives me some more
19 comfort than I had because I see the result of
20 incentives there for the industry to buy in, okay, for
21 the development of standards to come. So at the
22 beginning at times we thought that this would be
23 almost the end of the progress in improvement of
24 methods. I see it now differently. I see it as an
25 incentive for people to get, first of all, the

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1 standards in place and, second, better models to have
2 to proceed.

3 I think we have some observation about a
4 couple of areas where it doesn't provide the
5 incentives. In fact, it's counter productive, and
6 that's an issue where you have raised it as a policy
7 issue. I think we have to comment on that.

8 CHAIRMAN APOSTOLAKIS: I'd like to hear
9 from NEI.

10 DR. BONACA: Yeah.

11 CHAIRMAN APOSTOLAKIS: How come we didn't
12 hear from NEI?

13 DR. BONACA: But I'm saying I'm just
14 giving you some example of some use that already --

15 CHAIRMAN APOSTOLAKIS: There's no NEI.

16 DR. SIEBER: They went home.

17 DR. BONACA: -- because a minimum could be
18 useful to you because that would be supportive of what
19 you're doing right now.

20 MR. PARRY: Yeah, I think generally from
21 our discussions, I think we've had general agreement
22 with the approach, but with certainly some arguments
23 about some of the specifics, like Box 5, for example.

24 DR. ROSEN: Perhaps we could get to the
25 answer if we went around the table and you heard what

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1 the comments were.

2 CHAIRMAN APOSTOLAKIS: I'd like to hear
3 from NEI.

4 MR. MAGRUDER: Well, yeah. At yesterday's
5 meeting NEI agreed to give us a letter on their
6 position by the middle of April. So by the time the
7 full committee meets -- no, no.

8 MR. PARRY: We asked them by April the
9 6th. Well, we asked for it by April the 6th.

10 DR. ROSEN: That's time for you to draft
11 a letter.

12 MR. MAGRUDER: Yeah.

13 MR. SNODDERLY: Well, we invited NEI to
14 participate in this meeting, and they said that they
15 were apprehensive because they hadn't had a lot of
16 time with the action plan yet, but we'll definitely
17 work with them to get them to brief us in April with
18 these same --

19 CHAIRMAN APOSTOLAKIS: Yeah, at the full
20 committee meeting NEI will also brief us and tell us
21 where you disagree.

22 MS. DROUIN: Okay, So if I understand,
23 your preference is for us not to postpone our briefing
24 with the full committee to May, but to go ahead and
25 proceed on the April date.

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1 CHAIRMAN APOSTOLAKIS: If I have to write
2 a letter, Mary, yes, because the full committee is not
3 here.

4 MS. DROUIN: Right, but recognizing that
5 on April 15th you will not see our final action plan,
6 and you won't see the SECY paper.

7 CHAIRMAN APOSTOLAKIS: Geez.

8 MS. DROUIN: I mean that's what that
9 means.

10 CHAIRMAN APOSTOLAKIS: So if we come back
11 in May you will have this stuff?

12 DR. SIEBER: Will we see that then?

13 MS. DROUIN: Yes.

14 MR. MAGRUDER: We have to then.

15 CHAIRMAN APOSTOLAKIS: So let me come back
16 to this suggestion. Why don't we develop three or
17 four bullets based on what we have seen and reserve
18 the right to write a letter after we see the SECY?

19 It would be easier for us to --

20 DR. SIEBER: Well, I think we are almost
21 forced to do that.

22 CHAIRMAN APOSTOLAKIS: Yeah, we are forced
23 to do that.

24 DR. SIEBER: Because those are key
25 documents.

1 MS. DROUIN: I know. That's why I wanted
2 to make it clear.

3 CHAIRMAN APOSTOLAKIS: It shouldn't be
4 hard for us to come up with two or three bullets.
5 We'll go around the table right now.

6 MS. DROUIN: We have to be. Otherwise we
7 will not meet our deadline.

8 MR. MAGRUDER: We have to do that.

9 CHAIRMAN APOSTOLAKIS: Without the SECY?

10 DR. BONACA: No, I'm saying develop the
11 bullets.

12 CHAIRMAN APOSTOLAKIS: The bullets will be
13 easy to develop.

14 DR. BONACA: I understand. We want to,
15 you know --

16 CHAIRMAN APOSTOLAKIS: You guys will give
17 me ideas today, but we need the staff there. Do you
18 guys have anything else to say?

19 MR. MAGRUDER: No.

20 MS. DROUIN: No, we just would like to
21 know your decision whether we should get back in April
22 or May. You'll let us know?

23 CHAIRMAN APOSTOLAKIS: No, Mary, it will
24 be my secret.

25 (Laughter.)

1 CHAIRMAN APOSTOLAKIS: Thank you very much
2 for coming. This was a very informative presentation.
3 I really mean that. As Mario said, we have different
4 interpretations of the SRM, and I think you gave us a
5 very valuable interpretation which probably is a
6 correct one. So we appreciate that.

7 PARTICIPANTS: Thank you.

8 CHAIRMAN APOSTOLAKIS: Thank you.

9 Okay, gentlemen. We start with Mr. Sieber
10 this time.

11 DR. SIEBER: This time? Okay. This is
12 historical.

13 CHAIRMAN APOSTOLAKIS: If you were to
14 write bullets, tell me what you would write.

15 DR. KRESS: First give us your opinion on
16 whether we should write bullets or not.

17 CHAIRMAN APOSTOLAKIS: Versus a letter.

18 DR. SIEBER: I think if you're going to
19 have the subject in May we have got to sit down and
20 write the bullets between now and April.

21 DR. KRESS: As versus a letter.

22 DR. SIEBER: So that we can get the
23 committee to agree to them. And the first overall
24 bullet is, if I were writing them, is I believe the
25 staff has developed a concept of a plan that addresses

1 the necessary elements to fulfill the requirements of
2 the SRM, and I think they've done a pretty good job at
3 doing that.

4 DR. BONACA: These are bullets. Okay?
5 Let's make it clear. The committee is not here right
6 now.

7 DR. SIEBER: Yeah, they would be.

8 CHAIRMAN APOSTOLAKIS: We are going around
9 the table after we do it, after every subcommittee,
10 getting individual viewpoints. These people are
11 experienced enough to know that. These are not
12 committee positions.

13 DR. SIEBER: Okay, and beyond that I don't
14 think that we have addressed all of the technical
15 issues that are outstanding at this time, but they
16 will be forthcoming as they are developed by the
17 staff, and then we can deal with them.

18 And perhaps this isn't the time to be
19 dealing with the technical intricacies of some of
20 these things. WE're really talking more about a
21 framework and a concept and a time sequence or
22 schedule as to how to implement.

23 And I think it has been pretty well done.

24 CHAIRMAN APOSTOLAKIS: Thank you, Jack.

25 Okay. Peter.

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1 DR. FORD: Well, I agree with Jack's top
2 two bullets. I think it's an admirable objective, and
3 I think it's an appropriate plan.

4 I don't think it's appropriate to go down
5 to deeper depths, but let me just for the record say
6 what my technical issues. I heard us talk about
7 safety culture, which I agree with, but I don't
8 understand why it has not been put in, why you backed
9 off by burdening the donkey, as you said, Steve, and
10 materials degradation, as you know, I still --

11 DR. ROSEN: Too weighty those issues.

12 CHAIRMAN APOSTOLAKIS: Whoa, whoa, whoa.
13 It's his floor.

14 DR. ROSEN: I thought he asked me.

15 CHAIRMAN APOSTOLAKIS: Your time will
16 come.

17 DR. ROSEN: I thought when my name was
18 mentioned I was given a chance to respond.

19 DR. SIEBER: He's just attacking you now.
20 You can't fight back.

21 DR. FORD: I've got a nagging concern
22 about the route that you're taking to reduce this
23 whole plan to practice because it is going to depend
24 on the collaboration between the NRC, licensee and the
25 standards organizations, and I don't see that

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1 interaction being there.

2 Specifically, if it can take the standards
3 operations five to ten years, which we heard, to come
4 up with a standard, that is just not on and,
5 therefore, there has got to be a way to come around
6 that.

7 I don't know how you get around it legally
8 or whatever, whether it's by regulatory guidelines
9 which are not enforceable. I just don't know.

10 The second issue is that we heard from
11 over there that many of the licensees haven't bought
12 into this approach and, therefore, if that is true
13 then they won't put the resources to it, and therefore
14 if that is true, then you won't succeed.

15 Those are two kind of project management
16 type concerns which I don't know if it is our
17 agreement to judge, but those are nagging concerns
18 that I have. We won't be able to do this unless those
19 concerns are met.

20 But those are my comments.

21 CHAIRMAN APOSTOLAKIS: Thank you, Peter.
22 Mario.

23 DR. BONACA: Yeah, as I said before, when
24 the SRM first came out, I was one of those that was
25 concerned about the fact that, you know, Phase 4

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1 seemed so far in the future we would never get to it,
2 and I didn't see too much difference between Phase 1
3 and Phase 2.

4 The reality now with the plan in front of
5 me, I'm just more supportive of the SRM, the way it is
6 going. I believe that the industry probably is going
7 to be incentivated in participating, and there are
8 benefits, real benefits, coming.

9 As I mentioned before, I see that there
10 are the appropriate incentives, except in the specific
11 case of the Box No. 6 that really have to be looked at
12 because, I mean, it's almost a deterrent to be capable
13 and ahead of the pack. It means that you can't do
14 anything with the PRA just because you don't have some
15 peer review or standard there to support it. I think
16 something has to be done about that.

17 Clearly, we still have the conceptual. I
18 mean, I think the proof will come with implementation
19 of the tasks, and I am pretty anxious to see what
20 comes out for 5046, clearly, trying to understand, you
21 know, what are the requirements of PRA will be to fill
22 the needs to you to change 5046 on a risk informed
23 basis. And that we'll have to see in the future.

24 I'm not sure that if we wrote a letter or
25 if we had us some bullets we have to say anything

1 about human factors at this stage or the aging issues.
2 I do believe there are still significant issues that
3 we have to address at some point.

4 CHAIRMAN APOSTOLAKIS: Safety culture, you
5 mean?

6 DR. BONACA: Safety culture and the plant
7 aging.

8 You know, I have a sense, however, that
9 safety culture has been a major issue and component to
10 risk. In the past the plants really have learned to
11 run the plants much better. Davis-Besse seems to say
12 something else, but in general, I see the industry
13 working so much more effectively than they did 20
14 years ago. I mean the way the plants are run, et
15 cetera, it tells me that probably safety culture is
16 less of an issue because the whole industry has come
17 up.

18 But again is the one that is coming and we
19 haven't see yet, and some of these days we're going to
20 see sufficient degradations in numbers that probably
21 will have some expectations of --

22 CHAIRMAN APOSTOLAKIS: Do you have any
23 evidence of that?

24 DR. BONACA: No, we don't have it yet.
25 I'm saying in the future.

1 DR. FORD: Yes, the history of plant
2 outage, unplanned plant outages because of materials
3 degradation problems going back 20 years, and it
4 varies from era to era depending on what the specific
5 degradation.

6 CHAIRMAN APOSTOLAKIS: Maybe we can make
7 that a separate ACRS initiative and spend some time
8 thinking about the collecting the data and so on. I
9 don't want to bring it, you know, on an ad hoc --

10 DR. BONACA: The last comment I'd like to
11 make is that clearly there was on the part of the
12 Commission an interest in knowing where the ACRS was
13 coming from on this SRM, I mean, what the thoughts of
14 the ACRS would be.

15 I mean, we were asked to provide some --

16 CHAIRMAN APOSTOLAKIS: You have missed
17 that stupid E-mail.

18 DR. BONACA: No. You decide to send an E-
19 mail. I decide not to send one, you know.

20 CHAIRMAN APOSTOLAKIS: Yeah.

21 DR. BONACA: But what I'm trying to say
22 is --

23 CHAIRMAN APOSTOLAKIS: Are we still there?

24 DR. BONACA: -- in and of itself those --

25 DR. ROSEN: We're off the record now,

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1 right?

2 CHAIRMAN APOSTOLAKIS: Are we off the
3 record now? No.

4 DR. SIEBER: No?

5 CHAIRMAN APOSTOLAKIS: No.

6 DR. BONACA: I'm saying in and of itself,
7 I think that kind of communication and feedback will
8 be a reason to the Commission, and we'll see this plan
9 as being an effective way to proceed.

10 CHAIRMAN APOSTOLAKIS: Well, I told him to
11 shut up earlier. So I should shut up myself.

12 Go ahead. Mr. Rosen.

13 DR. ROSEN: Okay. I think this is going
14 the right direction. I support it. I have a couple
15 of specific comments.

16 One is on Phase 3 I'm worried that the
17 schedule for completion is held hostage to the
18 schedule for the standards development completion, and
19 that worries me a little bit and I think it needs to
20 be fairly explicit somehow about how you go around
21 that problem if it turns out to be one.

22 As to the issue of my little PRA donkey
23 trying to go up the mountain to collect, coming back
24 from the mountain with all of the wood on it and the
25 little peasant leading it and it has got this enormous

1 part of the wood, one of the pieces of wood that says
2 materials and the other one says safety culture, you
3 know, and --

4 DR. SIEBER: You need a bigger donkey.

5 DR. ROSEN: -- it's too big a load for
6 this little donkey.

7 PARTICIPANT: Get a mule.

8 DR. ROSEN: He doesn't have the money for
9 a mule, this man. So --

10 DR. SIEBER: Actually you could call those
11 two items snippets.

12 DR. ROSEN: Well, I think, coming away
13 from my donkey for a minute, I think the issue is
14 going to have to be to deal with the question of the
15 completion of the standards holding this Phase 3
16 hostages. You're going to need to have some
17 incentives so that you don't get into the position
18 where you say, "All right. No standards? We're going
19 to have to do something else."

20 I don't think that would be good. It
21 needs to be explicit that that's what you would do if
22 you got into the point. You're not going to leave
23 this whole thing crash simply because the industry
24 decides not to put the resources into standards.

25 But it would be better if there were some

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1 incentives so that they never even thought that that
2 was the right way to go.

3 Finally, the last comment I want to make
4 is about Phase 4. I made it earlier. To me it's to
5 have a requirement for staff review and approval.
6 It's unrealistic and well beyond anything the staff
7 could ever do.

8 To me you're going to be in Phase 4 only
9 into -- which is state of the art phase. To
10 distinguish that from Phase 3, you're going to be
11 seeing innovation, lots of innovation, things that are
12 beyond what other people are doing. It's not common
13 practice. You'll see organizational culture and PRAs
14 in some PRAs just as an example of innovation.

15 And then you're going to have to go out
16 there and somehow review and approve all of those,
17 just not likely to be able to do that.

18 So two things. Phase 3 is held hostage to
19 the standards development, and you need to be careful
20 about that, and in Phase 4, it's unrealistic as to
21 expecting the staff to have the resources to actually
22 do that work.

23 Thank you.

24 DR. KRESS: Well, I agree with the concept
25 of having bullets instead of a letter. We will have

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1 to get the full committee to agree to them, and that
2 probably means they have to come back and give us the
3 same presentation in an hour, or are you going to
4 summarize? How are we going to get the buy-in from
5 the full committee?

6 PARTICIPANT: It's scheduled.

7 DR. KRESS: It is scheduled?

8 MR. SNODDERLY: Right now the staff is
9 scheduled to brief us in April.

10 CHAIRMAN APOSTOLAKIS: But they will come
11 back again in May? I mean we are imposing on them too
12 much.

13 DR. KRESS: Yeah, is it possible that we
14 could have a subcommittee chairman's summary and get
15 buy-in from the full committee that way?

16 CHAIRMAN APOSTOLAKIS: And it's a fact;
17 it's not my interpretation. It's a fact that in April
18 you will not have the SECY document.

19 DR. KRESS: Yeah, exactly.

20 CHAIRMAN APOSTOLAKIS: that is a powerful
21 argument against writing a letter.

22 DR. KRESS: So I'm in favor of perhaps
23 George summarizing it and trying to get by the full
24 committee on a set of bullets because we don't have
25 all of them here, but we have quite a few of them.

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1 DR. BONACA: We can always go to the
2 bullets' representation and then zip his lips.

3 (Laughter.)

4 DR. KRESS: With respect to the
5 implementation plan, I like it. I like the
6 interpretation they gave to the SRM like you guys do,
7 and I like the way the incentives have been built into
8 it, and I think they are real incentives.

9 I guess I'm not as worried about standards
10 holding Phase 3 hostage. I think our experience has
11 been that the industry is not about to lag. I think
12 they're going to jump on this and try to get standards
13 going. I think they see a lot of benefit in this and
14 will be cooperative.

15 I also guess I don't think ACRS is ready
16 to have any kind of recommendation on either safety
17 culture or aging in PRA, and I think our bullets
18 shouldn't even broach those subjects right now. I
19 don't think we're ready, and I don't think we're of
20 one mind in the committee because we don't have a
21 committee position on either of those things.

22 So this is too premature to even think
23 about those.

24 I also think that the technical issues
25 should have high priority. Now, I don't know if they

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1 should be in the implementation plan or how they
2 should be, but I think they should have high priority,
3 and in my mind, I think the guidance on how to deal
4 with uncertainty is probably the highest priority one
5 in the bunch.

6 And so I'd like to have that somehow
7 reflected in our bullets.

8 And I guess I disagree with Steve on the
9 Phase 4. I think it's NRC's job to review and approve
10 these things. If they're going to be used for
11 substantial purposes, regulatory purposes, I think
12 they have to review them and approve them at one
13 point.

14 I don't know. Maybe it takes a lot of
15 resources and maybe it doesn't. I don't know. But I
16 think they will have to sign off on them, yeah.

17 CHAIRMAN APOSTOLAKIS: Clarification,
18 please. What was your position that Tom disagrees
19 with? Because I'm not sure I --

20 DR. ROSEN: Well, I thought that if you
21 have 70 PRAs out there, I mean, it's just a mess, and
22 to do review and approval at the level of detail that
23 I saw the staff do it at South Texas, then I just
24 don't think it's rational.

25 I mean, they're talking about hundreds and

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1 hundreds of man-years of effort.

2 CHAIRMAN APOSTOLAKIS: But isn't the point
3 of having standards that they would not have to do
4 that?

5 DR. ROSEN: No, I think not. I think
6 they'll have to get in and look at --

7 CHAIRMAN APOSTOLAKIS: Gareth?

8 MR. PARRY: You would sort of think so,
9 but it definitely says --

10 CHAIRMAN APOSTOLAKIS: Oh, NRC approved,
11 yeah.

12 MR. PARRY: -- NRC approved.

13 PARTICIPANT: Yeah, the SRM is clear on
14 that.

15 CHAIRMAN APOSTOLAKIS: Well, that is not
16 Phase 4.

17 MR. PARRY: Yeah, that's Phase 4. That's
18 Phase 4.

19 DR. ROSEN: i think we need to send a
20 signal. Maybe Tom doesn't agree with it. I think
21 maybe the bullets ought to send a signal. The
22 committee is not of one mind, but at least some
23 members, maybe only one member, is worried that the
24 staff is biting off too much in talking about --

25 CHAIRMAN APOSTOLAKIS: Okay. Now it's

1 clear.

2 DR. ROSEN: -- review and approval.

3 CHAIRMAN APOSTOLAKIS: Let's give the
4 floor back to Tom.

5 DR. KRESS: Well, that was it.

6 CHAIRMAN APOSTOLAKIS: You're done? Okay.

7 So I'm supposed to say now. Basically I
8 agree with what appears to be the sense of the
9 subcommittee that we should try to come up with
10 bullets and write a letter after we have a chance to,
11 after the staff has a chance to crystallize its
12 approach and the plan and develops a SECY so that we
13 have a chance to review the SECY.

14 And I understand this will be by May.
15 May?

16 MS. DROUIN: We have to.

17 CHAIRMAN APOSTOLAKIS: Yeah. Okay. So
18 then we write a letter in May, the latest in June, but
19 may.

20 So we can agree on a number of bullets.
21 I didn't hear any violent disagreement.

22 DR. ROSEN: No, I'm just worried about
23 the --

24 CHAIRMAN APOSTOLAKIS: No, I understand.
25 I understand. Look. The bullets can always say that

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1 some concern was expressed. I mean, it doesn't have
2 to be definitive, "this is it."

3 DR. ROSEN: And bullets have to clearly
4 say, you know --

5 CHAIRMAN APOSTOLAKIS: Yeah.

6 DR. ROSEN: -- this is an interim thing.

7 CHAIRMAN APOSTOLAKIS: So I agree with
8 everything. Tom was the only one who actually raised
9 the issue that I want to raise about the technical
10 issues. It seems to me they are fundamental to all
11 phases, and somehow they should be reflected on the
12 diagrams that Gareth is developing and also, you know,
13 in everything, the technical resolution.

14 The resolution, again, has to be taken
15 with a grain of salt. We don't mean here is a
16 rigorous methodology for handling it, but addressing
17 it and doing something about it. So that's all I'm
18 saying.

19 So okay. The agreement is then that these
20 gentlemen and lady will not come back to the April
21 meeting.

22 MR. SNODDERLY: George, can I make two
23 comments?

24 CHAIRMAN APOSTOLAKIS: Yeah.

25 MR. SNODDERLY: First, remember that also

1 the reason the Commission likes to have a letter
2 before they discuss something is so that they can have
3 time to consider the position. So we have to consider
4 how we communicate these positions prior to --

5 CHAIRMAN APOSTOLAKIS: They usually have
6 our slides well before the meeting.

7 MR. SNODDERLY: Okay, and then the other
8 point I wanted to make concerns the importance of
9 developing a position relative to Box 5 and 6. I
10 personally believe that it's very important that the
11 current incentives as presented by the staff for
12 developing the standards -- I'm not concerned as much
13 about holding industry hostage because if you do not
14 have the --

15 DR. ROSEN: No, I mean the staff not
16 holding industry hostage. I was saying that the
17 industry holds the staff hostage. So you
18 misunderstood.

19 MR. SNODDERLY: Oh, okay. Thank you.
20 Thank you.

21 Well, the point I wanted to make goes to
22 what you were saying, is that if you don't have --
23 usually the toughest part of the standard is there's
24 some controversial aspect of either the fire PRA or
25 the external events PRA, and in the absence of the

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1 standard then the burden of these controversial
2 issues goes to the reviewer and the ad hoc review, and
3 you lose consistency.

4 CHAIRMAN APOSTOLAKIS: You're absolutely
5 right.

6 MR. SNODDERLY: And so I do think -- and
7 I'm sorry I misunderstood.

8 CHAIRMAN APOSTOLAKIS: No, you're all
9 right.

10 MR. SNODDERLY: But I think that's an
11 important policy issue.

12 CHAIRMAN APOSTOLAKIS: I would not want to
13 get into Box 5 and 6 in our meeting with the
14 Commissioners because we don't know. Even the staff
15 hasn't reached the final conclusion. So for us to
16 speculate -- so I think we should keep it at a high
17 level. There seems to be consensus that, yes, this is
18 a good interpretation, good thing to go ahead, and so
19 on.

20 Technical issues we'll figure out some
21 recognized words to say, maybe express some concern
22 about being held hostage, not using those words.

23 DR. ROSEN: No, that's maybe not the right
24 words. Just controlling the schedule.

25 CHAIRMAN APOSTOLAKIS: Yeah. Now, they

1 will not make a presentation, but do we want Gareth to
2 be here?

3 MR. SNODDERLY: I think they should keep
4 the date open on their calendar and Mario will have to
5 make a decision.

6 DR. KRESS: Have we already put out a
7 notice, Federal Register notice?

8 CHAIRMAN APOSTOLAKIS: I don't think so.
9 Not for the full committee.

10 MR. HARRISON: It's on the Web.

11 CHAIRMAN APOSTOLAKIS: Okay. Then you
12 have to be here. Don't give the whole presentation,
13 please. I mean, it's --

14 PARTICIPANT: How much time do we have on
15 that?

16 CHAIRMAN APOSTOLAKIS: An hour and a half?
17 How much is it?

18 MR. MAGRUDER: Eight, thirty to ten.

19 PARTICIPANT: An hour and a half.

20 DR. BONACA: but this is of interest to
21 the rest of --

22 CHAIRMAN APOSTOLAKIS: Yeah, but then we
23 will go through the presentation again, and there will
24 be no time to formulate any opinion, and then I'll
25 have to go -- no. I want us to start formulating the

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1 bullets.

2 MR. PARRY: Can I suggest maybe that what
3 we maybe want to do is just provide that flow logic
4 diagram and walk through that?

5 DR. KRESS: That would be --

6 CHAIRMAN APOSTOLAKIS: And the technical
7 issues.

8 MR. PARRY: And the technical issues.

9 DR. ROSEN: Dana and others will take an
10 hour and a half dragging you through that.

11 PARTICIPANT: You need to define the
12 phases.

13 DR. SIEBER: Well, to me the phases'
14 definitions are important because the way I envision
15 this all happening is it's going to be like the New
16 York Marathon. Everybody is going to start running,
17 and South Texas is going to win, and they'll get to
18 the last phase and here will come some slow bunnies
19 that make it to Phase 2 and that's as far as they want
20 to run

21 MS. DROUIN: But I think when you go
22 through the flow chart, it defines the bases.

23 DR. SIEBER: It does. The definitions are
24 there.

25 CHAIRMAN APOSTOLAKIS: Okay. Let's do

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1 something together here so it will be like we're all
2 together now.

3 Do we all agree that Slide 15 is very
4 informative?

5 DR. ROSEN: Fifteen? Let me get to it.

6 DR. KRESS: Hold on, hold on.

7 DR. SIEBER: They're all informative.

8 MR. HARRISON: That's the staff review PRA
9 slide.

10 CHAIRMAN APOSTOLAKIS: On page 8. People
11 were saying they want to define the basis.

12 DR. ROSEN: But Phase 4 is controversial
13 in my view.

14 CHAIRMAN APOSTOLAKIS: Yeah. So when he
15 presents it, you raise your concerns, but is Slide 15
16 something we want Gareth to start with?

17 DR. ROSEN: Stop with?

18 CHAIRMAN APOSTOLAKIS: Start. Then
19 definitely he has to present the two slides with the
20 boxes. Maybe you modify them by then. It's three
21 weeks from now, four weeks from now, right?

22 Now, what else do you think? The tasks,
23 do you want to present the tasks?

24 PARTICIPANTS: No.

25 DR. ROSEN: Just that much, and Dana

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1 Powers is two and a half hours.

2 DR. KRESS: That's all right.

3 CHAIRMAN APOSTOLAKIS: Excuse me, but Dana
4 is also a member. What can you do?

5 DR. KRESS: But also Slide 30 you want to.

6 CHAIRMAN APOSTOLAKIS: Slide 30, Slide 30.
7 I like the Slide 30, but let's not forget the
8 presentation is by Gareth and his colleagues. Gareth
9 and your colleagues, what else do you think you should
10 present? It's your presentation, but you've got the
11 idea now.

12 MR. PARRY: I think it would be useful to
13 have the Phase 1, 2 and 3 slides because --

14 CHAIRMAN APOSTOLAKIS: Which numbers are
15 these?

16 MR. PARRY: Those are ten, 11, 12.

17 CHAIRMAN APOSTOLAKIS: Fine, okay. All
18 right. You start with ten.

19 MR. PARRY: Yes.

20 CHAIRMAN APOSTOLAKIS: Okay. Anything
21 else that you would like?

22 Mario said something about standards.

23 MS. DROUIN: Can I ask a different
24 question?

25 DR. BONACA: And 29.

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1 MS. DROUIN: You have on the schedule an
2 hour and a half. Are you telling us we're going to
3 have the full hour and a half?

4 CHAIRMAN APOSTOLAKIS: No.

5 MS. DROUIN: Are you telling us you want
6 us for a half an hour?

7 DR. SIEBER: Forty-five minutes.

8 CHAIRMAN APOSTOLAKIS: We want you to make
9 a presentation, and then we will start formulating
10 bullets and so on.

11 MS. DROUIN: Okay. So 45 minutes of which
12 half of it we'll leave for discussion. I mean that's
13 normally how we prepare.

14 PARTICIPANT: That's right. So you've got
15 20 minutes' worth.

16 MS. DROUIN: So we've got 20 minutes worth
17 of slides you want us to prepare for.

18 CHAIRMAN APOSTOLAKIS: Which means ten
19 slides.

20 MS. DROUIN: And we'll figure it out.

21 CHAIRMAN APOSTOLAKIS: So you don't want
22 us to give you some idea which slides we like?

23 MS. DROUIN: No, no. I'm not saying that.

24 PARTICIPANT: I think we have just got
25 about ten slides.

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1 CHAIRMAN APOSTOLAKIS: Okay, great. But
2 you've got the idea now. Did you take a note of --

3 DR. BONACA: I think the message they got
4 was the interaction between the standards and the
5 guidance and the possible progress. That has to be
6 communicated somehow. When you talk about Phase 1, 2,
7 3, that will come out.

8 CHAIRMAN APOSTOLAKIS: Let me ask another
9 thing of the subcommittee members. Why don't we let
10 them go through the whole presentation? I suspect
11 that some of the members may object to a shortened
12 presentation. What do you think?

13 DR. SIEBER: I don't think you've got
14 enough time.

15 DR. KRESS: You don't have enough time.

16 DR. SIEBER: I don't think you have enough
17 time.

18 CHAIRMAN APOSTOLAKIS: Okay. So then it's
19 a good idea to about ten slides. Okay? Ten slides.

20 And it's not log normal. It doesn't have
21 an error factor with ten or 11, huh? And Mike will
22 have prepared maybe a set of bullets, but I don't want
23 to send them to the members who have not been exposed
24 to anything here. Maybe should I send them only to
25 you gentlemen in advance?

1 We can't do things in secret.

2 DR. ROSEN: No, no, no. Don't do that.
3 Send them to everybody. The ones of us -- those of us
4 who have been here will understand them better. Those
5 who won't will be amazed.

6 CHAIRMAN APOSTOLAKIS: Then I'm going to
7 show them here when we come here.

8 Okay, and I would appreciate it if you
9 guys stayed for the whole hour and a half when we
10 discuss the bullet in case we have questions.

11 MS. DROUIN: We will.

12 DR. ROSEN: Well, we have your bank
13 account in our hands.

14 CHAIRMAN APOSTOLAKIS: One other thing,
15 one other thing. I was talking to -- maybe we can go
16 off the record now.

17 This meeting is officially adjourned.

18 (Whereupon, at 4:46 p.m., the Subcommittee
19 meeting in the above-entitled matter was concluded.)

20

21

22

23

24

25

CERTIFICATE

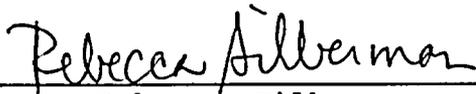
This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission in the matter of:

Name of Proceeding: Advisory Committee on
Reactor Safeguards
Reliability and Probabilistic
Risk Assessment Subcommittee

Docket Number: n/a

Location: Rockville, MD

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



Rebecca Silberman
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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
MEETING OF THE SUBCOMMITTEE ON
RELIABILITY AND PROBABILISTIC RISK ASSESSMENT
ROOM T-2B3, 11545 ROCKVILLE PIKE, ROCKVILLE MD
MARCH 25, 2004

Contact: Michael Snodderly (301-415-6927, mrs1@nrc.gov)

-PROPOSED SCHEDULE-

TOPICS	PRESENTERS	TIME
I. Opening Remarks	G. Apostolakis, ACRS	1:00-1:05 p.m.
II. Briefing on Action Plan for Stabilizing the PRA Quality Expectations and Requirements <ul style="list-style-type: none">• Objectives• Definition of Phases• Implementation	G. Parry, NRR M. Drouin, RES D. Harrison, NRR S. Magruder, NRR	1:05-2:45 p.m.
BREAK		2:45-3:00 p.m.
III. Briefing on Action Plan for Stabilizing the PRA Quality Expectations and Requirements (Continued) <ul style="list-style-type: none">• Staff and Industry Activities• Resolution of Technical Issues• Schedule	G. Parry, NRR M. Drouin, RES D. Harrison, NRR S. Magruder, NRR	3:00-4:30 p.m.
IV. Subcommittee Discussion	G. Apostolakis, ACRS	4:30-5:00 p.m.
V. Adjourn	G. Apostolakis, ACRS	5:00 p.m.

NOTE:

- Presentation time should not exceed 50 percent of the total time allocated for specific item. The remaining 50 percent of the time is reserved for discussion.
- 35 copies of the presentation materials are to be provided to the Subcommittee.

STABILIZING THE PRA QUALITY EXPECTATIONS AND REQUIREMENTS

Presentation to ACRS Subcommittee on
Reliability and Probabilistic Risk Assessment
March 25, 2004

D. Harrison, S. Magruder, G. W. Parry,
M. Tschiltz, NRR
M. T. Drouin, RES

1

PURPOSE OF MEETING

- To present the draft action plan for response to SRM COMNJD-03-0002 - Stabilizing The PRA Quality Expectations and Requirements
- To solicit stakeholder input

2

OUTLINE OF PRESENTATION

- Background and objectives
- Definition of phases
- Implementation
- Staff and industry activities
- Resolution of technical issues
- Potential policy issues
- Schedule

3

PRA QUALITY

- Some ambiguity about the meaning of the term “PRA Quality”
- Defined in RG 1.200
 - For a given application, PRA Quality is determined by the appropriateness of
 - Scope
 - Level of detail
 - Technical acceptability
 - The greater the emphasis on risk insights the more stringent the requirements for the PRA in terms of scope, level of detail and assessment of delta risk

4

PURPOSE OF THE SRM

- Commission's objectives:
 - Increase the use of risk insights through the use of high quality, more complete PRAs, thus enhancing safety
 - Provide a pathway for predictability by establishing clear expectations on PRA quality
 - Facilitate near-term progress and enhancement of safety through the use of available methods
 - Create efficiencies in the staff's review of risk-informed applications
 - Strive for increased effectiveness in the longer term

5

APPROACH IN THE SRM

- Adopts a phased approach to achieving an appropriate quality for licensee PRAs for NRC's risk-informed regulatory decision-making
- Allows continued practical use of risk insights while progressing towards more complete, and technically acceptable PRAs

6

SRM DIRECTION

- Directs the staff to develop an action plan to:
 - Define a practical strategy for implementation
 - Address the resolution of technical issues, such as:
 - Model uncertainty
 - Seismic and other external events
 - Human performance issues

7

STATUS

- Interoffice (NRR/RES) working group established
- Draft plan made available 3/15
- Soliciting input from stakeholders
- Final plan due to Commission 7/04

8

THE PHASED APPROACH

- The phases are differentiated by the availability of the guidance documents for using PRA in regulatory applications, and establishing that the PRAs are of sufficient quality. These include:
 - industry consensus standards
 - industry guidance documents
 - regulatory guides
- Staff guidance documents addressing performance of reviews are required for implementation.

9

PHASE 1

- Currently in Phase 1
- PRA quality judged only in the context of what is needed for the application - no requirement for the review of the base PRA
- All contributors to risk (operational modes and initiating event types) are addressed
- Contributors to risk not in the scope of the PRA model are addressed in a number of ways including qualitative arguments, bounding analysis, and restricting the scope of application

10

PHASE 2

- An application type (“issue-specific”) approach to PRA quality
- PRA quality demonstrated by comparison with an applicable consensus standard for those elements required by the application
- All contributors to risk (operational modes and initiating event types, internal, seismic, fire, etc.) are addressed
- All significant risk contributors applicable to the issue are included in the PRA scope
- Significance of a contributor is determined by whether taking it into consideration could change the decision substantially

11

PHASE 2 (Cont'd)

- To achieve Phase 2, guidance must exist for
 - Use of PRA in making the decision (e.g., regulatory guides), including definition of scope
 - Assessment of the quality of the PRA for each scope item used to support the application (e.g., Standards, RG 1.200)

12

PHASE 3

- Regulatory framework is in place that enables licensees to develop a base PRA to conform to all the existing Standards in sufficient depth to address all currently envisioned applications
- Phase 3 is scheduled to be completed by December 31, 2008
 - Consistent with schedule for Standards development
- A licensee enters Phase 3 when its base PRA conforms to all the existing Standards in sufficient depth to address all currently envisioned applications

13

PHASE 4

- Phase 4 will be reached when a PRA has been developed to the state-of-the-art (e.g., CC III)
- It is recognized that reaching this goal will be resource intensive both for licensees and NRC
- Phase 4 involves direct staff review and approval of licensee PRAs
- This plan does not address Phase 4

14

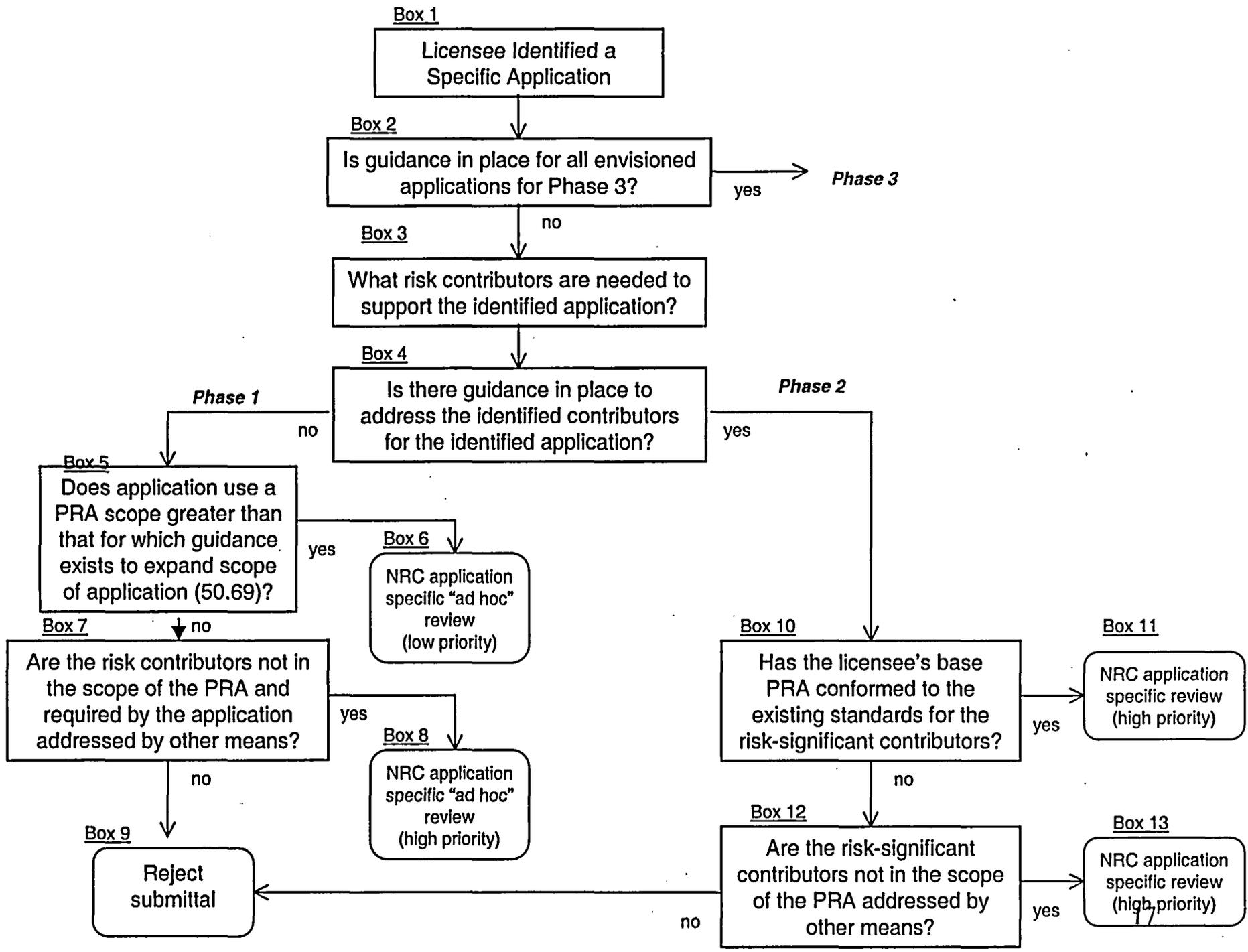
STAFF REVIEW OF PRA

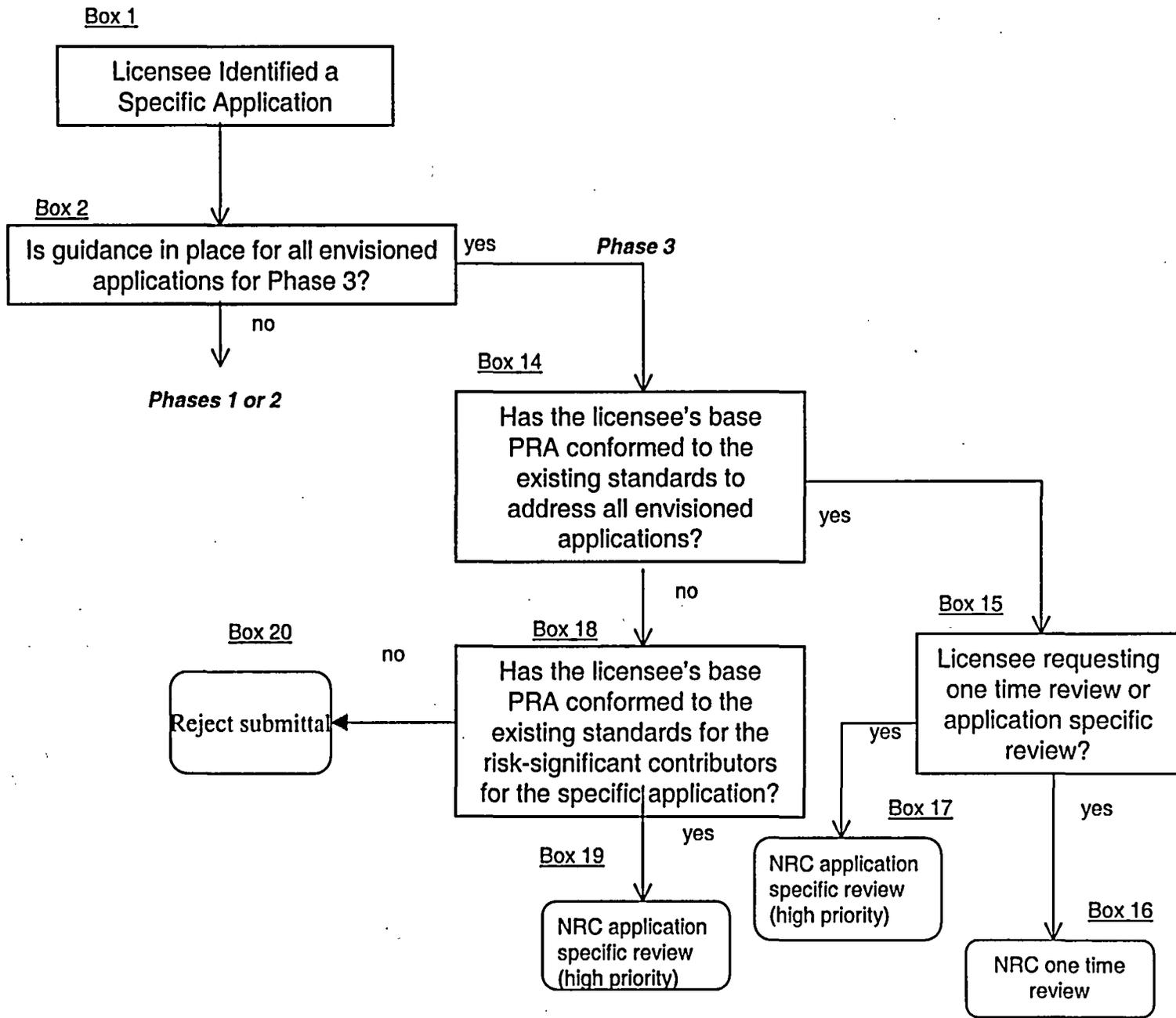
- Phase 1: ad hoc review
- Phase 2: reliance on peer review in accordance with RG 1.200 with audit for each application
- Phase 3: as for Phase 2 but performed one time sufficient to address all applications
- Phase 4: staff review and approval of base PRA

15

IMPLEMENTATION

16





EXAMPLE

- What could this mean for the current vision of 50.69?
 - The NEI-00-04 categorization process allows for the use of non-PRA methods. SSCs relied on in non-PRA methods are not within scope of re-categorization
 - Currently RG 1.200 together with a Reg Guide endorsing NEI-00-04 would qualify it as a phase 2 application for those licensees using only a level 1 and limited level 2 (LERF) internal events PRA at full power
 - However, for a licensee using a fire PRA in addition to the above, this would remain as a phase 1 application until a standard for a fire PRA is completed and addressed in RG 1:200

19

OTHER ISSUES TO BE ADDRESSED IN THE PLAN

- Binning of applications into focus areas
 - Operational applications
 - Licensing basis changes
 - Rulemaking
- Resolution of technical issues and relationship to other staff initiatives, e.g., treatment of uncertainty in decision-making
- Informal program to monitor PRA quality
 - Application reviews
 - Periodic check against SPAR models

20

STAFF AND INDUSTRY ACTIVITIES NEEDED TO IMPLEMENT THE PHASED APPROACH

21

ACTION PLAN TASKS

- Task 1: Identify types of applications within the following general categories
 - Operational uses (e.g., to support maintenance rule)
 - Oversight program (e.g., use of licensee PRA in phase 3 of SDP)
 - License amendments (e.g., 50.69, risk-informed ISI)
 - Implementation of new rules (e.g., 50.46)

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ACTION PLAN TASKS (Cont'd)

- Task 2: Identify guidance documents needed for Phase 2 for each application type and specify:
 - How PRA results are used in decision-making
 - Scope and level of detail of PRA required
- Some guidance documents already exist, but may need to be modified to address quality expectations

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ACTION PLAN TASKS (Cont'd)

- Task 3: Identify staff activities for developing the necessary guidance documents:
 - Supporting development of and endorsement of PRA standards
 - Updates to regulatory guides (including RG 1.200)
 - Development of regulatory guides for new applications (e.g., 50.69, 50.46)
 - Developing methods and supporting documents for technical issues (e.g., NUREGs)
 - Developing staff implementation guidelines (e.g., SRP, office instructions)

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ACTION PLAN TASKS (Cont'd)

- Task 4: Define the schedule for transition to Phase 2 as a function of application type.
Dependent on:
 - Existence of endorsed standards for significant contributors
 - Ability of licensees to develop peer reviewed PRAs for significant contributors
 - Development of staff guidance document
- Schedule will allow time between endorsement of standards and full implementation

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ACTION PLAN TASKS (Cont'd)

- Task 5: Develop the necessary guidance documents
- Resolve key implementation issues, such as:
 - Levels of review for licensee submittals
 - Definition of significance of a contributor as it relates to the regulatory decisions
 - What does it mean to issue a document “for trial use”

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ACTION PLAN TASKS (Cont'd)

- Task 6: Develop phase 3 guidance
 - An “umbrella” document for all PRA quality requirements sufficient to support all current applications

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ACTION PLAN TASKS (Cont'd)

- Task 7: Continued ad hoc monitoring of PRA quality
 - Use opportunities provided by risk-informed license application reviews, exercising SDP phase 3 reviews, benchmarking of SPAR models and SDP notebooks
- Will phase out as transition to Phase 3 occurs

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INDUSTRY ACTIVITIES

- Develop consensus standards:
 - low power and shutdown PRA (2005)
 - Fire PRA (2005)
- Develop guides for applications (e.g., NEI-00-04)
- Provide update to NEI-00-02 (self-assessment process)

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RESOLUTION OF TECHNICAL ISSUES

- Model uncertainty
 - Guidance document (e.g., NUREG) being developed that addresses the issue of treatment of uncertainties (e.g., model) in both the PRA and in decision making
- Seismic and other external events
 - ANS standard on external events under staff review (preliminary staff position for public review and comment this summer)
 - Above document (on uncertainties) also includes guidance for acceptable alternative methods (e.g., bounding, sensitivity analyses) to a PRA
- Human performance issues
 - NUREG on good HRA practices to supplement the PRA (HRA) standard

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NEXT STEPS

- Finalize plan
- Incorporate stakeholder comments
- Send to Commission in July
 - anticipate policy issues related to implementation

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POTENTIAL POLICY ISSUES

- Level of review for applications in which a PRA scope greater than that for which quality guidance exists is used to expand the scope of application, i.e., increase relaxation (e.g., 50.69)
- Whether licensees are expected to develop Phase 3 PRAs in order to participate in risk-informed regulatory activities

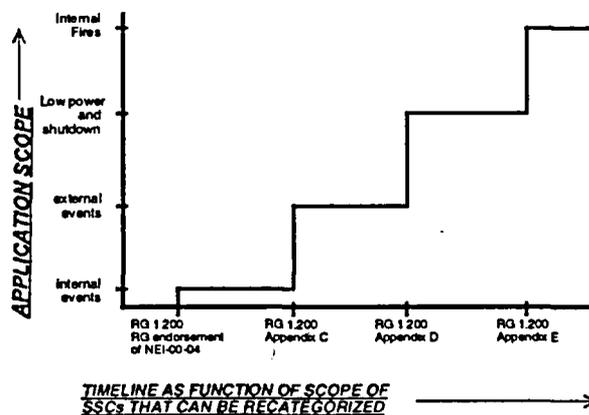
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SCHEDULE

- Revise plan in response to stakeholder comments (May)
- Return to full ACRS to request letter
 - Concept only (April 15), or
 - Complete plan (?)
- Forward to EDO by end of June, 2004

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BACKUP SLIDE



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