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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

COMMITTEE MEMBERS PRESENT (Continued):

WILLIAM J. SHACK, Member

JOHN D. SIEBER, Member

MICHAEL SNODDERLY, ACRS Staff

NRC STAFF PRESENT:

STEPHEN DINSMORE

MARY DROUIN

DONALD HARRISON

BILL KEMPER

STU MAGRUDER

GARETH PARRY

MARK REINHART

MARK RUBIN

BOB TJADER

MIKE TSCHILTZ

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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

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

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

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

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

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

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

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

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

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

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

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

(Laughter.)

DR. KRESS: Freudian slip?

MR. PARRY: It's got to be.

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

(Laughter.)

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

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

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

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

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

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

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

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

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

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

MR. PARRY: Excuse me?

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

MR. PARRY: Suitable PRA.

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

CHAIRMAN APOSTOLAKIS: PRA suitability.

DR. ROSEN: Yeah.

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

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

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

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

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

CHAIRMAN APOSTOLAKIS: Let's give Gareth five minutes.

DR. ROSEN: Oh, Chair.

CHAIRMAN APOSTOLAKIS: I mean that, please.

(Laughter.)

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

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

CHAIRMAN APOSTOLAKIS: Give your conclusions first.

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

conclusions.

CHAIRMAN APOSTOLAKIS: You don't have any.

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

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

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

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

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

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

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

MR. PARRY: Not at that level, no.

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

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

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

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

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

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

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

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

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

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

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

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

An additional topic in the SRM is that we

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

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

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

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

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

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

CHAIRMAN APOSTOLAKIS: Yes.

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

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

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

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

MS. DROUIN: Yes.

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

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

MS. DROUIN: Yes and no.

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

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

MR. BRADLEY: This is Biff Bradley of NEI.

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

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

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

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

CHAIRMAN APOSTOLAKIS: I can see technical issues associated with model uncertainty and human performance issues. I though the technical issues on the seismic area had been resolved.

Are you referring to standards?

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

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

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

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

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

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

MS. DROUIN: We are currently reviewing it.

CHAIRMAN APOSTOLAKIS: Reviewing it.

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

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

MR. PARRY: Okay.

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

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

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

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

(Laughter.)

MR. PARRY: Be patient.

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

MR. PARRY: I know that.

(Laughter.)

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

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

So we're in the process of soliciting --

CHAIRMAN APOSTOLAKIS: So this is the group.

MR. PARRY: With Mike, yeah.

CHAIRMAN APOSTOLAKIS: Okay.

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

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

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

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

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

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

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

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

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

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

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

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

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

Is there a way around this?

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

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

MR. PARRY: Right.

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

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

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

DR. ROSEN: It's stakeholders.

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

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

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

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

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

MS. DROUIN: That's right.

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

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

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

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

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

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

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

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

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

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

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

perhaps. Another one might be seismic contribution. Another one might be fire. Another one might be high winds.

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

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

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

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

Phase 2 is described as -- the words the

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

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

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

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

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

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

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

CHAIRMAN APOSTOLAKIS: Well, that's not a

difference because we already do that.

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

CHAIRMAN APOSTOLAKIS: ASME?

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

CHAIRMAN APOSTOLAKIS: But the ASME standard?

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

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

MR. PARRY: Seventy-something, right.

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

MR. PARRY: Right.

CHAIRMAN APOSTOLAKIS: Without high confidence?

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

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

MR. PARRY: They've been reviewed.

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

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

CHAIRMAN APOSTOLAKIS: Yeah.

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

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

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

CHAIRMAN APOSTOLAKIS: Streamlines. This streamlines it.

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

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

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

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

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

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

DR. SIEBER: What force and risk is this?

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

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

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

quantify everything?

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

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

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

MR. PARRY: Right.

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

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

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

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

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

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

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

MR. MAGRUDER: And improving efficiencies, staff efficiencies.

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

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

MR. PARRY: Right, exactly.

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

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

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

PARTICIPANT: Like ISI.

MR. PARRY: Like ISI, right.

You wouldn't need a fire PI.

MR. MAGRUDER: Maybe we should change it. In that last bullet instead of saying "significance," maybe we should say "the relevance of the contributor."

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

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

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

MR. MAGRUDER: Yes.

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

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

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

something will change the decision.

MR. PARRY: Yes.

CHAIRMAN APOSTOLAKIS: And how do we do that?

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

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

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

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

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

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

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

MR. PARRY: To demonstrate the significance.

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

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

CHAIRMAN APOSTOLAKIS: That's reasonable.

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

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

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

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

CHAIRMAN APOSTOLAKIS: The end of this year?

MR. HARRISON: End of this year, yeah.

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

CHAIRMAN APOSTOLAKIS: Very good.

MR. PARRY: Actually it will be Donny.

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

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

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

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

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

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

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

So that has to define the short term.

CHAIRMAN APOSTOLAKIS: So Phase --

MR. PARRY: Plus some applications.

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

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

we'll talk about in a minute.

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

CHAIRMAN APOSTOLAKIS: But by December 31st, 2008?

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

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

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

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

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

I'm sure they built that into their considerations.

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

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

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

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

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

MR. PARRY: Right.

DR. FORD: What is the rate limiting step?

What is the thing that could stop you?

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

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

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

MR. PARRY: I cannot really answer that.

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

MR. PARRY: Or the economic benefit really.

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

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

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

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

would bear some weight.

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

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

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

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

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

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

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

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

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

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

DR. SIEBER: For any use.

MR. PARRY: Yes, for any use.

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

DR. ROSEN: A state of the art PRA.

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

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

MR. HARRISON: None.

MR. PARRY: No, none probably.

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

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

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

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

MR. MAGRUDER: Yeah.

DR. ROSEN: The current operating fleet.

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

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

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

DR. ROSEN: An SER for exemption.

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

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

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

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

MR. PARRY: 1989?

MR. HARRISON: Oh, '99 probably.

DR. ROSEN: No, '89.

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

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

DR. SIEBER: Never.

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

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

MR. PARRY: Almost as many resources as

during the PRA in the first place.

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

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

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

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

MR. PARRY: That's Phase 3.

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

MR. PARRY: Which it does.

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

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

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

MR. PARRY: We agree.

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

MR. PARRY: Yeah.

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

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

MR. PARRY: Okay.

MR. MAGRUDER: The Commission put it in

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

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

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

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

CHAIRMAN APOSTOLAKIS: State of the practice?

MR. PARRY: Yeah, I think.

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

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

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

Personally I think capability Category 2 ought to be appropriate.

Now, Stanley has got a comment to make.

MR. LEVINSON: Stanley Levinson from Areva.

Capability Category --

PARTICIPANT: Areva?

MR. LEVINSON: Areva, formerly Framatome AMP.

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

MR. PARRY: You meant two, right?

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

MR. PARRY: Three.

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

application.

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

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

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

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

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

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

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

That's state of the art.

DR. ROSEN: Can I summarize that, George?

CHAIRMAN APOSTOLAKIS: Yeah.

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

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

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

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

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

MR. PARRY: It's been done before.

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

MR. PARRY: And generally accepted.

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

MR. PARRY: Without discouraging state of the art.

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

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

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

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

MR. PARRY: Yes.

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

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

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

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

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

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

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

Is that what this means?

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

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

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

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

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

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

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

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

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

right."

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

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

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

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

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

CHAIRMAN APOSTOLAKIS: Have you presented this to the Commission?

MR. PARRY: No.

CHAIRMAN APOSTOLAKIS: You have not briefed?

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

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

MR. PARRY: Thank you.

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

MR. PARRY: Thank you.

We think that we have the right interpretation.

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

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

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

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

MR. SNODDERLY: But it is on our agenda in

May, our May meeting with the Commissioners.

CHAIRMAN APOSTOLAKIS: Oh, with the Commissioners.

MR. SNODDERLY: Yes.

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

(Laughter.)

MR. PARRY: He's got them.

CHAIRMAN APOSTOLAKIS: Good. Thank you.

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

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

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

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

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

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

(Laughter.)

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

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

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

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

MR. TSCHILTZ: Just a clarification on

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

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

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

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

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

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

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

MR. PARRY: Right.

CHAIRMAN APOSTOLAKIS: They comply.

MR. PARRY: It should be relatively quick.

You're right.

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

MR. PARRY: No, no, no.

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

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

DR. KRESS: They get factored in.

MR. PARRY: No, they get normal.

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

CHAIRMAN APOSTOLAKIS: What?

DR. BONACA: Is it possible?

MR. PARRY: No, I think the --

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

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

PARTICIPANT: It's inversely proportional.

MR. PARRY: It's a resource thing.

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

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

PARTICIPANTS: In some way.

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

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

MR. PARRY: When we have the --

CHAIRMAN APOSTOLAKIS: In 2008?

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

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

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

CHAIRMAN APOSTOLAKIS: So this whole thing is for 2008?

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

CHAIRMAN APOSTOLAKIS: Because you will

never go to Phase 3 before 2008.

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

CHAIRMAN APOSTOLAKIS: This time invariate.

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

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

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

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

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

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

MS. DROUIN: You will see that when we get

to the next flow chart.

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

MR. PARRY: No, no, no.

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

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

DR. ROSEN: It's continued.

MR. PARRY: Right.

MR. SNODDERLY: It goes to the next viewgraph.

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

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

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

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

addressed one way or another.

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

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

That may be correct in the --

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

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

PARTICIPANT: That makes a hell of a difference.

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

So that was the easy part of this. Okay?

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

MR. PARRY: Yes.

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

MR. PARRY: Right.

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

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

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

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

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

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

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

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

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

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

If they follow the guidance in NEI 00.04

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

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

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

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

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

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

PARTICIPANTS: Yeah.

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

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

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

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

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

PARTICIPANTS: Yes.

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

MR. PARRY: Well, it is.

CHAIRMAN APOSTOLAKIS: It is?

MR. PARRY: Yes, it is.

CHAIRMAN APOSTOLAKIS: Tell me where.

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

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

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

MR. MAGRUDER: Right.

CHAIRMAN APOSTOLAKIS: That's really what happens.

MR. MAGRUDER: Right.

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

DR. ROSEN: Oh, no?

(Laughter.)

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

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

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

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

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

CHAIRMAN APOSTOLAKIS: What?

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

MR. PARRY: It is.

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

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

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

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

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

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

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

PARTICIPANTS: Right.

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

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

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

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

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

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

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

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

(Laughter.)

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

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

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

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

MR. PARRY: Well, okay.

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

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

CHAIRMAN APOSTOLAKIS: So it's really a

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

MR. PARRY: Who says?

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

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

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

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

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

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

are the ones that are at the greatest risk contributor.

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

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

CHAIRMAN APOSTOLAKIS: Dragging their feet?

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

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

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

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

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

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

I don't know.

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

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

MR. PARRY: That's true.

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

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

CHAIRMAN APOSTOLAKIS: Right.

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

CHAIRMAN APOSTOLAKIS: Which we have already, right?

MR. PARRY: Which then you can read.

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

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

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

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

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

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

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

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

CHAIRMAN APOSTOLAKIS: Penalizing.

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

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

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

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

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

In fact, there's a circular from the OMB

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

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

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

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

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

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

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

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

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

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

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

MR. PARRY: No, not necessarily.

CHAIRMAN APOSTOLAKIS: Yeah, you do.

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

scenarios.

DR. SIEBER: Agreed.

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

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

CHAIRMAN APOSTOLAKIS: Fine.

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

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

DR. SIEBER: It endorses the standard.

CHAIRMAN APOSTOLAKIS: That's all it does?

PARTICIPANT: Well, it does much more.

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

MS. DROUIN: It does more than that.

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

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

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

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

MS. DROUIN: Absolutely.

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

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

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

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

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

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

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

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

MS. DROUIN: Yes.

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

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

Having been through one --

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

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

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

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

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

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

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

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

DR. ROSEN: Yes, and his colleagues.

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

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

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

CHAIRMAN APOSTOLAKIS: Sure. I don't want

to put it down.

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

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

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

MR. PARRY: Yes.

CHAIRMAN APOSTOLAKIS: Right?

MR. PARRY: Yes.

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

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

CHAIRMAN APOSTOLAKIS: Okay.

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

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

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

CHAIRMAN APOSTOLAKIS: Okay. Until 3:15.

(Whereupon, the foregoing matter went off the record at 2:54 p.m. and went back on the record at 3:13 p.m.)

Okay. Let's continue then.

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

(Laughter.)

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

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

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

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

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

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

now, right?

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

DR. SIEBER: Right.

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

DR. SIEBER: That would be a --

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

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

MR. PARRY: Yeah.

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

MR. PARRY: Yeah, that's clear.

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

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

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

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

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

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

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

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

MR. PARRY: The LERF part of Level --

MS. DROUIN: Of full Level 2.

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

MR. PARRY: Yeah.

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

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

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

MR. PARRY: Yeah, that was raised yesterday.

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

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

CHAIRMAN APOSTOLAKIS: Currently anticipated?

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

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

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

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

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

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

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

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

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

MS. DROUIN: Stanley?

MR. BRADLEY: Biff Bradley from NEI.

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

MR. HARRISON: Stanley Levinson.

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

MS. DROUIN: But it did pass.

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

CHAIRMAN APOSTOLAKIS: It did pass means?

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

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

CHAIRMAN APOSTOLAKIS: Level 3 would be required in licensing.

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

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

MR. HARRISON: Right.

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

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

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

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

MS. DROUIN: Correct.

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

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

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

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

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

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

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

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

about things like risk informed ISI and 5069.

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

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

MR. PARRY: It would be a license amendment.

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

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

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

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

level of detail of PRA required.

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

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

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

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

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

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

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

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

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

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

peer reviewed the next day.

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

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

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

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

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

DR. ROSEN: For a period of time.

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

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

MR. PARRY: Right.

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

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

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

MR. PARRY: Right, right.

DR. SIEBER: Yeah, that's right.

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

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

on the documents we write.

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

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

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

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

Another issue I think we have to address

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

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

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

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

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

DR. ROSEN: Well, read the relevant sections.

CHAIRMAN APOSTOLAKIS: The relevant sections.

MS. DROUIN: The relevant part.

DR. ROSEN: Nothing irrelevant.

CHAIRMAN APOSTOLAKIS: The stuff that will affect our decision.

DR. ROSEN: Not that anything in the Reg.

Guide is irrelevant.

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

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

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

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

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

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

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

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

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

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

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

DR. SIEBER: The draft is still in discussion.

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

DR. SIEBER: Well, there was a DG.

MS. DROUIN: It did have a DG.

DR. SIEBER: It was 1122 or something.

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

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

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

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

CHAIRMAN APOSTOLAKIS: I remember that.

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

CHAIRMAN APOSTOLAKIS: Yeah, the pilot phase.

DR. SIEBER: Trial phase, not a pilot

phase.

MR. HARRISON: Right, trial phase.

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

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

DR. SIEBER: It actually does matter.

CHAIRMAN APOSTOLAKIS: It does matter.

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

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

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

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

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

CHAIRMAN APOSTOLAKIS: Right.

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

MR. MAGRUDER: Yes.

CHAIRMAN APOSTOLAKIS: Okay.

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

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

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

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

the requirements for each of these applications."

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

MR. HARRISON: Right.

MR. PARRY: Yeah, I think so.

DR. SIEBER: All right.

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

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

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

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

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

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

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

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

DR. FORD: How much are these seven tasks

dependent on input from the licensee?

MR. PARRY: I think --

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

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

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

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

DR. FORD: Okay, okay.

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

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

The other thing that the industry may do --

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

MR. PARRY: It stopped.

MS. DROUIN: It's out.

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

MS. DROUIN: December.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

the bounding analysis.

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

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

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

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

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

So that's kind of a nutshell.

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

MS. DROUIN: That's right.

DR. ROSEN: But it will always be true.

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

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

MS. DROUIN: Absolutely.

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

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

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

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

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

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

MR. PARRY: Yeah.

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

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

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

MR. PARRY: Right.

CHAIRMAN APOSTOLAKIS: It's independent of

any phased approach to PRA, it seems to me.

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

CHAIRMAN APOSTOLAKIS: Right.

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

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

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

CHAIRMAN APOSTOLAKIS: Argued.

MR. PARRY: Argued. Okay.

It's not going to be done immediately, but

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

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

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

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

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

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

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

CHAIRMAN APOSTOLAKIS: Yes.

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

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

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

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

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

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

right model?"

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

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

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

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

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

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

CHAIRMAN APOSTOLAKIS: Yeah, I mean geez.

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

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

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

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

MR. PARRY: Yes.

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

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

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

understanding.

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

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

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

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

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

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

That drives me up the wall, you know.

MR. PARRY: Yeah, me, too.

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

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

MR. PARRY: Yeah, zero, yeah.

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

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

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

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

CHAIRMAN APOSTOLAKIS: Then do something about it, yeah.

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

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

DR. ROSEN: Safety culture.

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

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

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

five.

MR. PARRY: Five, yeah.

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

DR. ROSEN: Crosscutting issues.

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

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

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

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

DR. ROSEN: Let me associate myself with

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

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

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

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

MR. PARRY: Yeah.

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

PARTICIPANTS: Right.

DR. SIEBER: Since I'm on the Metallurgy

Subcommittee I thought I should say that, but there is an important series of phenomena that degrade and change the risk of --

DR. ROSEN: Well, we've now identified two important things that are not in PRA, safety culture and materials degradation. The question is: should we insist that they be in PRAs?

My answer to that is no. My answer to that is we're asking too much of this horse. We have already loaded it down with everything we can think of. This poor little donkey can hardly stand anymore.

DR. SIEBER: You know, on the other hand, when you go to do a license renewal application approval, you look at the PRA, and the PRA says everything is fine, but the PRA doesn't deal with any aging phenomena.

DR. KRESS: I didn't realize that we looked at the PRA at license renewal.

DR. SIEBER: It's in there.

CHAIRMAN APOSTOLAKIS: At license renewal we don't look at it.

MR. HARRISON: Yeah, it's actually only in the environmental.

DR. SIEBER: If we do it, we don't make a comment on it.

DR. ROSEN: My comments are not to say that either safety culture or materials degradation are unimportant. They are critically important, but putting them on PRA is too much for PRA.

DR. SIEBER: Well, it's hard to do.

CHAIRMAN APOSTOLAKIS: They should be part of the integrated decision making process.

DR. SIEBER: That is true.

DR. KRESS: However, that means you need some quantification of their effect on CDF and LERF.

CHAIRMAN APOSTOLAKIS: Well, the aging you can do.

DR. KRESS: Well, I know, but if you're going to factor it into your decision and your decision process is looking at things like CDF and delta CDFs, which it --

DR. ROSEN: Well, it also looks at defense in depth.

DR. ROSEN: The decision process uses CDF and LERF as one input. It's risk informed. It's not the only one.

CHAIRMAN APOSTOLAKIS: That's why I'm saying you should be a sixth box, maybe a seventh as well to satisfy Peter.

MR. SNODDERLY: George, what I'd like to

suggest is that at the end of this meeting I'm going to hand out a status report for a meeting that we're going to have next Thursday on risk informing 5046, and in that in -- the status of the expert solicitation that has taken place -- and in that expert solicitation they do address safety culture and materials degradation as part of the expert solicitation. I think you'll find it interesting.

CHAIRMAN APOSTOLAKIS: I'd love seeing it.

MR. SNODDERLY: So my suggestion is take a look at how the staff addressed those two issues for that specific application and it will give you something to --

CHAIRMAN APOSTOLAKIS: But I guess the bigger question is if we look at this SRM, and let's say it's implemented, Phase 1, 2, 3 and so on. Are we leaving out some important stuff from our decision making process, not on PRA; from our decision making process?

Yes, we are. Now, this SRM really addressed the PRA, the PRA quality. So you might say something about the aging, but it's not really -- I mean, you can do that separately, too. It's a different time scale.

MS. DROUIN: Well, I think one of the

things that we can do is, you know, we're up to what, seven tasks? And instead of having this discussion on the technical issues separate, that one of the tasks should be to look at as we go through the phases, as we implement the various guidance documents, you know, what are the technical issues and are they being addressed.

I mean, that is part of our process.

CHAIRMAN APOSTOLAKIS: Yeah. I think the technical issues should be in every phase, and by the way, I don't know. I mean, when you say human performance, it's affected a lot by the culture.

DR. ROSEN: Oh, of course.

MS. DROUIN: And hopefully an answer to when we notice them is that we can then go out of the plan, say these are being addressed under these other programs.

DR. ROSEN: But the human performance that's the PRAs now is the operator performance.

CHAIRMAN APOSTOLAKIS: Yes.

DR. ROSEN: And the safety culture issue is much broader than just operator performance.

MS. DROUIN: Oh, yes.

DR. ROSEN: It's maintenance people performance, technical people's performance,

executives' performance.

CHAIRMAN APOSTOLAKIS: That's right.

DR. ROSEN: It's the whole performance and the performance of these people in teams, a point that we've made before in letters to the Commission, that the performance of people in teams both in the control room and outside the control room are elements of the safety culture.

MR. HARRISON: And if I could just maybe add a thought. A lot time ago when I first started this, one of the -- and I've said it in our organization a couple of times -- an underpinning of the PRA is the plant is operating according to its procedures and its programs, and if those aren't true, then the underpinning of the PRA is not true.

And so to address the safety culture, to address even aging, you do that through other programs that establish a base and make sure that, if you will, your PRA is okay above that.

CHAIRMAN APOSTOLAKIS: Actually, issues -- well, it depends on how you interpret safety culture. I mean, some people interpret it as attitudes of people and values and so on. Other people, I think, including the insight reports, they include organizational structures and so on.

But wasn't there a case from actual experience where organizational screw-ups led to initiators?

PARTICIPANTS: Sure.

CHAIRMAN APOSTOLAKIS: We lost 9,000 gallons of water in one plant because they postponed work on Friday to Monday without informing people.

DR. ROSEN: Well, the tragic history of the space shuttles.

CHAIRMAN APOSTOLAKIS: Well, nuclear.

So you might ask yourself, you know, is our list of initiating events complete if we don't look at these things, which is really a PRA issue.

MR. PARRY: It is a PRA issue, but I think also we cannot predict or even identify things that we don't know about.

CHAIRMAN APOSTOLAKIS: Well --

MR. PARRY: You really can't.

CHAIRMAN APOSTOLAKIS: We don't know about them because we're not looking at it. It's amazing. I mean that's what they told Erasmus and Levine when they started this thing. I mean, both of them told me, said they were very distinguished people in this industry who told us we were crazy. Both Saul Levine and Norm Erasmus told me that, that this could never

be done. WASH 1400 could never be done.

So, you know, unless you look into something and try it you cannot prejudge, but again, let me understand something because it's important.

The resolution of these issues is part of the plan or not?

MS. DROUIN: No, I'm saying identification of the issues, a step of going through and noting in the plan that we have an explicit step to look for technical issues I think should be part of the plan

CHAIRMAN APOSTOLAKIS: And I agree.

MR. PARRY: And how they factor in.

MS. DROUIN: Yes.

CHAIRMAN APOSTOLAKIS: And right now it's not, right?

MS. DROUIN: We don't have an explicit task that says that.

CHAIRMAN APOSTOLAKIS: In what you presented, it was not there.

MR. PARRY: It was not.

CHAIRMAN APOSTOLAKIS: And you agree that it should be there.

MR. PARRY: As a link. I mean, in the broader plan --

CHAIRMAN APOSTOLAKIS: Yeah, but --

MR. PARRY: -- we have to do all of these things. We have to explain how these things get in.

CHAIRMAN APOSTOLAKIS: You don't seem to acknowledge though that there is more urgency to this than the plant.

MR. PARRY: I'm not sure.

CHAIRMAN APOSTOLAKIS: I think there is more urgency to this because we're actually making decisions now using risk informed, of course. I agree, but what is the risk information?

MR. PARRY: I'm not sure that it's more urgent. I think in a sense what all of these activities will do -- what we have to do right now is to accept the fact that there are in some places large uncertainties, and we have to make those decisions despite that.

CHAIRMAN APOSTOLAKIS: But didn't you give people a little bit of guidance? Couldn't you give them some guidance, what to do? I mean you don't have to solve the issue, but say, "Look. In this particular case, recognize there is model uncertainty and here is what you can do right now, and work is continuing."

MR. PARRY: Yeah, but that's within the realm of the decision making process.

CHAIRMAN APOSTOLAKIS: Absolutely.

MR. PARRY: The plan that we have does not really address that.

CHAIRMAN APOSTOLAKIS: But in Phase 3 you say that it will be applicable to all anticipated applications. Therefore these issues must have been resolved by then.

MR. PARRY: But what that does, the way it feeds back though, I think, is you look at what the decision making process is. What does it require? Does it require CDF? Does it require LERF? Does it require uncertainly analysis?

That feeds back into requirements on the PRAs, which is already in the standard in the sense that what the standard says is you have to identify the key sources of uncertainty and be able to assess their significance.

CHAIRMAN APOSTOLAKIS: You're talking at a very high level about it. I'll tell you what. If people applied 1.174, paying serious attention to all of the discussion and uncertainty, we would have no problem right now. I think the only guy who has read it is you because you wrote it. And whether you proofread it --

(Laughter.)

CHAIRMAN APOSTOLAKIS: I mean, there is beautiful stuff there that nobody does.

DR. BONACA: We have a meeting and don't read it.

CHAIRMAN APOSTOLAKIS: He told me about it.

Anyway, any other comments? Well, we will go around the table to give me advice regarding the letter.

MR. PARRY: We haven't quite --

CHAIRMAN APOSTOLAKIS: You're not done?

MR. PARRY: I have two or three slides.

CHAIRMAN APOSTOLAKIS: Okay. Run through your slides.

MR. PARRY: There may be only one more slide.

DR. ROSEN: We're getting into the slide quality issue.

MR. PARRY: The next steps then, and as was pointed out to me yesterday, too, I ought to reverse the first two bullets and get the stakeholder comments first before finalizing the plan, and then we'll send it to the Commission in July, and we have a slide here with two potential policy issues, which we have discussed.

One was this famous Box 5 leading into Box 6, and the other one was whether we would expect or whether the Commission expects the licensees to go into Phase 3 if they want to play in the risk informed regulatory arena.

And then the final slide is what we want to discuss with you really. We're going to revise the plan in response to stakeholder comments, and we don't --

MS. DROUIN: And ACRS.

MR. PARRY: Well, they're stakeholders.

PARTICIPANT: A major stakeholder.

MR. PARRY: Now, we need to return to you guys to request a letter on this.

CHAIRMAN APOSTOLAKIS: In April.

MR. PARRY: But we're set for April, but by April the 15th, we will not have revised this plan to the level that we want to revise it.

CHAIRMAN APOSTOLAKIS: So?

MR. PARRY: So you could either give us a letter on the concept on the 15th --

CHAIRMAN APOSTOLAKIS: On what we have heard today?

MR. PARRY: Of what you have heard today or --

CHAIRMAN APOSTOLAKIS: Or?

MR. PARRY: -- we could wait until we've got a more complete plan and we can come back to you in May perhaps, if that's possible.

CHAIRMAN APOSTOLAKIS: One mitigating factor is that we are meeting with the Commission in May, and one of the items we're discussing with them is RPA SRM quality, and the committee is usually very reluctant to trust one member to talk about something unless there is an official ACRS letter, in which case a member, of course, follows the letter.

So if we don't write a letter in April, we're complicating everybody's life.

MR. PARRY: But the letter in April will be on a -- must be on a -- yeah, it can only be on --

CHAIRMAN APOSTOLAKIS: It must be on a high level staff, and it can also say things that you have already decided to change. That's the problem when you write a premature letter. So we have to discuss this with the leadership of the committee.

DR. ROSEN: Well, two out of three of us are here.

CHAIRMAN APOSTOLAKIS: It's a very easy thing. Just let me speak and --

DR. ROSEN: That's right, George.

(Laughter.)

DR. ROSEN: My feeling is we should write a letter, Mario, write a letter that talks about our view of it right about now and put George in irons and tell them give him a copy of the letter.

CHAIRMAN APOSTOLAKIS: "Now, read."

DR. ROSEN: One to read and one to eat.

DR. SIEBER: Could you come up with a draft by tomorrow morning?

CHAIRMAN APOSTOLAKIS: I understand the Chairman though has approved.

Well, if we don't have to meet with the Commission, then I think it's a good idea to postpone the letter.

DR. ROSEN: Is there a really serious potential that we won't have a meeting with the Commission?

CHAIRMAN APOSTOLAKIS: As far as I know, he's going to be there. I think we have to have a letter.

DR. KRESS: I think they'll leave this one on there.

DR. ROSEN: And if we have a meeting --

DR. KRESS: Because they're very interested in our view.

CHAIRMAN APOSTOLAKIS: No, but look.

DR. ROSEN: Well, I don't feel comfortable at all going to that meeting without having put something in the letter. I think they can say to us if we don't do that --

DR. SIEBER: This time maybe they want the comments more than the original letter.

DR. ROSEN: -- where are you?

CHAIRMAN APOSTOLAKIS: Why can't the committee come up with three or four bullets in full session without writing a letter and we present the Commission the bullets?

DR. ROSEN: That's not the way we do business though.

DR. KRESS: We can do that.

CHAIRMAN APOSTOLAKIS: Well, we can always start now.

DR. KRESS: We can do that. It can be a committee position if we agree on it.

DR. BONACA: Yeah, we have time on the agenda to discuss what's going to be in these presentations in detail. We definitely are going to prepare the overheads, right?

DR. ROSEN: Mario, do you feel comfortable about trying to come up with bullets or something like

that without a letter?

DR. BONACA: Well, right now it seems to me that we should be able to generate a letter anyway.

DR. KRESS: Well, the way we would come up with the bullets is the same process we use to come up with the letter.

DR. ROSEN: That's right.

DR. KRESS: And all we do is vote on it. I don't see any problem.

CHAIRMAN APOSTOLAKIS: Yeah, but the letter requires to go over it line by line and the discussion and all of that. With the bullets you go line by line and you have only 12 lines, and then they can be turned into a latter later.

DR. KRESS: That was my point.

DR. ROSEN: A letter later, yeah.

DR. KRESS: And it's equivalent.

CHAIRMAN APOSTOLAKIS: Yes, John.

DR. SIEBER: it seems to me that we know enough to write a general purpose letter right now or at least for the next meeting as opposed to coming up with a committee position, writing a letter later, and ending up the letter saying something different than what the committee position was.

CHAIRMAN APOSTOLAKIS: It won't say anything different because if we have bullets, we will have big letters, preliminary whatever, thoughts or conclusions.

DR. ROSEN: I think we've had --

CHAIRMAN APOSTOLAKIS: Well, the letter will say the same thing because we will not have seen the final --

DR. ROSEN: We can write a brief now. We need a letter draft for the full committee meeting in a couple of weeks.

DR. BONACA: Let me give you my impression. Okay? We went from an SRM which at the beginning puzzled us. I mean everybody interpreted it somewhat. I believe we have here a plan that to me is a good interpretation of the SRM.

DR. SIEBER: Yes.

DR. BONACA: And also gives me some more comfort than I had because I see the result of incentives there for the industry to buy in, okay, for the development of standards to come. So at the beginning at times we thought that this would be almost the end of the progress in improvement of methods. I see it now differently. I see it as an incentive for people to get, first of all, the

standards in place and, second, better models to have to proceed.

I think we have some observation about a couple of areas where it doesn't provide the incentives. In fact, it's counter productive, and that's an issue where you have raised it as a policy issue. I think we have to comment on that.

CHAIRMAN APOSTOLAKIS: I'd like to hear from NEI.

DR. BONACA: Yeah.

CHAIRMAN APOSTOLAKIS: How come we didn't hear from NEI?

DR. BONACA: But I'm saying I'm just giving you some example of some use that already --

CHAIRMAN APOSTOLAKIS: There's no NEI.

DR. SIEBER: They went home.

DR. BONACA: -- because a minimum could be useful to you because that would be supportive of what you're doing right now.

MR. PARRY: Yeah, I think generally from our discussions, I think we've had general agreement with the approach, but with certainly some arguments about some of the specifics, like Box 5, for example.

DR. ROSEN: Perhaps we could get to the answer if we went around the table and you heard what

the comments were.

CHAIRMAN APOSTOLAKIS: I'd like to hear from NEI.

MR. MAGRUDER: Well, yeah. At yesterday's meeting NEI agreed to give us a letter on their position by the middle of April. So by the time the full committee meets -- no, no.

MR. PARRY: We asked them by April the 6th. Well, we asked for it by April the 6th.

DR. ROSEN: That's time for you to draft a letter.

MR. MAGRUDER: Yeah.

MR. SNODDERLY: Well, we invited NEI to participate in this meeting, and they said that they were apprehensive because they hadn't had a lot of time with the action plan yet, but we'll definitely work with them to get them to brief us in April with these same --

CHAIRMAN APOSTOLAKIS: Yeah, at the full committee meeting NEI will also brief us and tell us where you disagree.

MS. DROUIN: Okay, So if I understand, your preference is for us not to postpone our briefing with the full committee to May, but to go ahead and proceed on the April date.

CHAIRMAN APOSTOLAKIS: If I have to write a letter, Mary, yes, because the full committee is not here.

MS. DROUIN: Right, but recognizing that on April 15th you will not see our final action plan, and you won't see the SECY paper.

CHAIRMAN APOSTOLAKIS: Geez.

MS. DROUIN: I mean that's what that means.

CHAIRMAN APOSTOLAKIS: So if we come back in May you will have this stuff?

DR. SIEBER: Will we see that then?

MS. DROUIN: Yes.

MR. MAGRUDER: We have to then.

CHAIRMAN APOSTOLAKIS: So let me come back to this suggestion. Why don't we develop three or four bullets based on what we have seen and reserve the right to write a letter after we see the SECY?

It would be easier for us to --

DR. SIEBER: Well, I think we are almost forced to do that.

CHAIRMAN APOSTOLAKIS: Yeah, we are forced to do that.

DR. SIEBER: Because those are key documents.

MS. DROUIN: I know. That's why I wanted to make it clear.

CHAIRMAN APOSTOLAKIS: It shouldn't be hard for us to come up with two or three bullets. We'll go around the table right now.

MS. DROUIN: We have to be. Otherwise we will not meet our deadline.

MR. MAGRUDER: We have to do that.

CHAIRMAN APOSTOLAKIS: Without the SECY?

DR. BONACA: No, I'm saying develop the bullets.

CHAIRMAN APOSTOLAKIS: The bullets will be easy to develop.

DR. BONACA: I understand. We want to, you know --

CHAIRMAN APOSTOLAKIS: You guys will give me ideas today, but we need the staff there. Do you guys have anything else to say?

MR. MAGRUDER: No.

MS. DROUIN: No, we just would like to know your decision whether we should get back in April or May. You'll let us know?

CHAIRMAN APOSTOLAKIS: No, Mary, it will be my secret.

(Laughter.)

CHAIRMAN APOSTOLAKIS: Thank you very much for coming. This was a very informative presentation. I really mean that. As Mario said, we have different interpretations of the SRM, and I think you gave us a very valuable interpretation which probably is a correct one. So we appreciate that.

PARTICIPANTS: Thank you.

CHAIRMAN APOSTOLAKIS: Thank you.

Okay, gentlemen. We start with Mr. Sieber this time.

DR. SIEBER: This time? Okay. This is historical.

CHAIRMAN APOSTOLAKIS: If you were to write bullets, tell me what you would write.

DR. KRESS: First give us your opinion on whether we should write bullets or not.

CHAIRMAN APOSTOLAKIS: Versus a letter.

DR. SIEBER: I think if you're going to have the subject in May we have got to sit down and write the bullets between now and April.

DR. KRESS: As versus a letter.

DR. SIEBER: So that we can get the committee to agree to them. And the first overall bullet is, if I were writing them, is I believe the staff has developed a concept of a plan that addresses

the necessary elements to fulfill the requirements of the SRM, and I think they've done a pretty good job at doing that.

DR. BONACA: These are bullets. Okay? Let's make it clear. The committee is not here right now.

DR. SIEBER: Yeah, they would be.

CHAIRMAN APOSTOLAKIS: We are going around the table after we do it, after every subcommittee, getting individual viewpoints. These people are experienced enough to know that. These are not committee positions.

DR. SIEBER: Okay, and beyond that I don't think that we have addressed all of the technical issues that are outstanding at this time, but they will be forthcoming as they are developed by the staff, and then we can deal with them.

And perhaps this isn't the time to be dealing with the technical intricacies of some of these things. WE're really talking more about a framework and a concept and a time sequence or schedule as to how to implement.

And I think it has been pretty well done.

CHAIRMAN APOSTOLAKIS: Thank you, Jack.

Okay. Peter.

DR. FORD: Well, I agree with Jack's top two bullets. I think it's an admirable objective, and I think it's an appropriate plan.

I don't think it's appropriate to go down to deeper depths, but let me just for the record say what my technical issues. I heard us talk about safety culture, which I agree with, but I don't understand why it has not been put in, why you backed off by burdening the donkey, as you said, Steve, and materials degradation, as you know, I still --

DR. ROSEN: Too weighty those issues.

CHAIRMAN APOSTOLAKIS: Whoa, whoa, whoa. It's his floor.

DR. ROSEN: I thought he asked me.

CHAIRMAN APOSTOLAKIS: Your time will come.

DR. ROSEN: I thought when my name was mentioned I was given a chance to respond.

DR. SIEBER: He's just attacking you now. You can't fight back.

DR. FORD: I've got a nagging concern about the route that you're taking to reduce this whole plan to practice because it is going to depend on the collaboration between the NRC, licensee and the standards organizations, and I don't see that

interaction being there.

Specifically, if it can take the standards operations five to ten years, which we heard, to come up with a standard, that is just not on and, therefore, there has got to be a way to come around that.

I don't know how you get around it legally or whatever, whether it's by regulatory guidelines which are not enforceable. I just don't know.

The second issue is that we heard from over there that many of the licensees haven't bought into this approach and, therefore, if that is true then they won't put the resources to it, and therefore if that is true, then you won't succeed.

Those are two kind of project management type concerns which I don't know if it is our agreement to judge, but those are nagging concerns that I have. We won't be able to do this unless those concerns are met.

But those are my comments.

CHAIRMAN APOSTOLAKIS: Thank you, Peter.

Mario.

DR. BONACA: Yeah, as I said before, when the SRM first came out, I was one of those that was concerned about the fact that, you know, Phase 4

seemed so far in the future we would never get to it, and I didn't see too much difference between Phase 1 and Phase 2.

The reality now with the plan in front of me, I'm just more supportive of the SRM, the way it is going. I believe that the industry probably is going to be incentivated in participating, and there are benefits, real benefits, coming.

As I mentioned before, I see that there are the appropriate incentives, except in the specific case of the Box No. 6 that really have to be looked at because, I mean, it's almost a deterrent to be capable and ahead of the pack. It means that you can't do anything with the PRA just because you don't have some peer review or standard there to support it. I think something has to be done about that.

Clearly, we still have the conceptual. I mean, I think the proof will come with implementation of the tasks, and I am pretty anxious to see what comes out for 5046, clearly, trying to understand, you know, what are the requirements of PRA will be to fill the needs to you to change 5046 on a risk informed basis. And that we'll have to see in the future.

I'm not sure that if we wrote a letter or if we had us some bullets we have to say anything

about human factors at this stage or the aging issues. I do believe there are still significant issues that we have to address at some point.

CHAIRMAN APOSTOLAKIS: Safety culture, you mean?

DR. BONACA: Safety culture and the plant aging.

You know, I have a sense, however, that safety culture has been a major issue and component to risk. In the past the plants really have learned to run the plants much better. Davis-Besse seems to say something else, but in general, I see the industry working so much more effectively than they did 20 years ago. I mean the way the plants are run, et cetera, it tells me that probably safety culture is less of an issue because the whole industry has come up.

But again is the one that is coming and we haven't see yet, and some of these days we're going to see sufficient degradations in numbers that probably will have some expectations of --

CHAIRMAN APOSTOLAKIS: Do you have any evidence of that?

DR. BONACA: No, we don't have it yet. I'm saying in the future.

DR. FORD: Yes, the history of plant outage, unplanned plant outages because of materials degradation problems going back 20 years, and it varies from era to era depending on what the specific degradation.

CHAIRMAN APOSTOLAKIS: Maybe we can make that a separate ACRS initiative and spend some time thinking about the collecting the data and so on. I don't want to bring it, you know, on an ad hoc --

DR. BONACA: The last comment I'd like to make is that clearly there was on the part of the Commission an interest in knowing where the ACRS was coming from on this SRM, I mean, what the thoughts of the ACRS would be.

I mean, we were asked to provide some --

CHAIRMAN APOSTOLAKIS: You have missed that stupid E-mail.

DR. BONACA: No. You decide to send an E-mail. I decide not to send one, you know.

CHAIRMAN APOSTOLAKIS: Yeah.

DR. BONACA: But what I'm trying to say is --

CHAIRMAN APOSTOLAKIS: Are we still there?

DR. BONACA: -- in and of itself those --

DR. ROSEN: We're off the record now,

right?

CHAIRMAN APOSTOLAKIS: Are we off the record now? No.

DR. SIEBER: No?

CHAIRMAN APOSTOLAKIS: No.

DR. BONACA: I'm saying in and of itself, I think that kind of communication and feedback will be a reason to the Commission, and we'll see this plan as being an effective way to proceed.

CHAIRMAN APOSTOLAKIS: Well, I told him to shut up earlier. So I should shut up myself.

Go ahead. Mr. Rosen.

DR. ROSEN: Okay. I think this is going the right direction. I support it. I have a couple of specific comments.

One is on Phase 3 I'm worried that the schedule for completion is held hostage to the schedule for the standards development completion, and that worries me a little bit and I think it needs to be fairly explicit somehow about how you go around that problem if it turns out to be one.

As to the issue of my little PRA donkey trying to go up the mountain to collect, coming back from the mountain with all of the wood on it and the little peasant leading it and it has got this enormous

part of the wood, one of the pieces of wood that says materials and the other one says safety culture, you know, and --

DR. SIEBER: You need a bigger donkey.

DR. ROSEN: -- it's too big a load for this little donkey.

PARTICIPANT: Get a mule.

DR. ROSEN: He doesn't have the money for a mule, this man. So --

DR. SIEBER: Actually you could call those two items snippets.

DR. ROSEN: Well, I think, coming away from my donkey for a minute, I think the issue is going to have to be to deal with the question of the completion of the standards holding this Phase 3 hostages. You're going to need to have some incentives so that you don't get into the position where you say, "All right. No standards? We're going to have to do something else."

I don't think that would be good. It needs to be explicit that that's what you would do if you got into the point. You're not going to leave this whole thing crash simply because the industry decides not to put the resources into standards.

But it would be better if there were some

incentives so that they never even thought that that was the right way to go.

Finally, the last comment I want to make is about Phase 4. I made it earlier. To me it's to have a requirement for staff review and approval. It's unrealistic and well beyond anything the staff could ever do.

To me you're going to be in Phase 4 only into -- which is state of the art phase. To distinguish that from Phase 3, you're going to be seeing innovation, lots of innovation, things that are beyond what other people are doing. It's not common practice. You'll see organizational culture and PRAs in some PRAs just as an example of innovation.

And then you're going to have to go out there and somehow review and approve all of those, just not likely to be able to do that.

So two things. Phase 3 is held hostage to the standards development, and you need to be careful about that, and in Phase 4, it's unrealistic as to expecting the staff to have the resources to actually do that work.

Thank you.

DR. KRESS: Well, I agree with the concept of having bullets instead of a letter. We will have

to get the full committee to agree to them, and that probably means they have to come back and give us the same presentation in an hour, or are you going to summarize? How are we going to get the buy-in from the full committee?

PARTICIPANT: It's scheduled.

DR. KRESS: It is scheduled?

MR. SNODDERLY: Right now the staff is scheduled to brief us in April.

CHAIRMAN APOSTOLAKIS: But they will come back again in May? I mean we are imposing on them too much.

DR. KRESS: Yeah, is it possible that we could have a subcommittee chairman's summary and get buy-in from the full committee that way?

CHAIRMAN APOSTOLAKIS: And it's a fact; it's not my interpretation. It's a fact that in April you will not have the SECY document.

DR. KRESS: Yeah, exactly.

CHAIRMAN APOSTOLAKIS: that is a powerful argument against writing a letter.

DR. KRESS: So I'm in favor of perhaps George summarizing it and trying to get by the full committee on a set of bullets because we don't have all of them here, but we have quite a few of them.

DR. BONACA: We can always go to the bullets' representation and then zip his lips.

(Laughter.)

DR. KRESS: With respect to the implementation plan, I like it. I like the interpretation they gave to the SRM like you guys do, and I like the way the incentives have been built into it, and I think they are real incentives.

I guess I'm not as worried about standards holding Phase 3 hostage. I think our experience has been that the industry is not about to lag. I think they're going to jump on this and try to get standards going. I think they see a lot of benefit in this and will be cooperative.

I also guess I don't think ACRS is ready to have any kind of recommendation on either safety culture or aging in PRA, and I think our bullets shouldn't even broach those subjects right now. I don't think we're ready, and I don't think we're of one mind in the committee because we don't have a committee position on either of those things.

So this is too premature to even think about those.

I also think that the technical issues should have high priority. Now, I don't know if they

should be in the implementation plan or how they should be, but I think they should have high priority, and in my mind, I think the guidance on how to deal with uncertainty is probably the highest priority one in the bunch.

And so I'd like to have that somehow reflected in our bullets.

And I guess I disagree with Steve on the Phase 4. I think it's NRC's job to review and approve these things. If they're going to be used for substantial purposes, regulatory purposes, I think they have to review them and approve them at one point.

I don't know. Maybe it takes a lot of resources and maybe it doesn't. I don't know. But I think they will have to sign off on them, yeah.

CHAIRMAN APOSTOLAKIS: Clarification, please. What was your position that Tom disagrees with? Because I'm not sure I --

DR. ROSEN: Well, I thought that if you have 70 PRAs out there, I mean, it's just a mess, and to do review and approval at the level of detail that I saw the staff do it at South Texas, then I just don't think it's rational.

I mean, they're talking about hundreds and

hundreds of man-years of effort.

CHAIRMAN APOSTOLAKIS: But isn't the point of having standards that they would not have to do that?

DR. ROSEN: No, I think not. I think they'll have to get in and look at --

CHAIRMAN APOSTOLAKIS: Gareth?

MR. PARRY: You would sort of think so, but it definitely says --

CHAIRMAN APOSTOLAKIS: Oh, NRC approved, yeah.

MR. PARRY: -- NRC approved.

PARTICIPANT: Yeah, the SRM is clear on that.

CHAIRMAN APOSTOLAKIS: Well, that is not Phase 4.

MR. PARRY: Yeah, that's Phase 4. That's Phase 4.

DR. ROSEN: i think we need to send a signal. Maybe Tom doesn't agree with it. I think maybe the bullets ought to send a signal. The committee is not of one mind, but at least some members, maybe only one member, is worried that the staff is biting off too much in talking about --

CHAIRMAN APOSTOLAKIS: Okay. Now it's

clear.

DR. ROSEN: -- review and approval.

CHAIRMAN APOSTOLAKIS: Let's give the floor back to Tom.

DR. KRESS: Well, that was it.

CHAIRMAN APOSTOLAKIS: You're done? Okay.

So I'm supposed to say now. Basically I agree with what appears to be the sense of the subcommittee that we should try to come up with bullets and write a letter after we have a chance to, after the staff has a chance to crystallize its approach and the plan and develops a SECY so that we have a chance to review the SECY.

And I understand this will be by May. May?

MS. DROUIN: We have to.

CHAIRMAN APOSTOLAKIS: Yeah. Okay. So then we write a letter in May, the latest in June, but may.

So we can agree on a number of bullets. I didn't hear any violent disagreement.

DR. ROSEN: No, I'm just worried about the --

CHAIRMAN APOSTOLAKIS: No, I understand. I understand. Look. The bullets can always say that

some concern was expressed. I mean, it doesn't have to be definitive, "this is it."

DR. ROSEN: And bullets have to clearly say, you know --

CHAIRMAN APOSTOLAKIS: Yeah.

DR. ROSEN: -- this is an interim thing.

CHAIRMAN APOSTOLAKIS: So I agree with everything. Tom was the only one who actually raised the issue that I want to raise about the technical issues. It seems to me they are fundamental to all phases, and somehow they should be reflected on the diagrams that Gareth is developing and also, you know, in everything, the technical resolution.

The resolution, again, has to be taken with a grain of salt. We don't mean here is a rigorous methodology for handling it, but addressing it and doing something about it. So that's all I'm saying.

So okay. The agreement is then that these gentlemen and lady will not come back to the April meeting.

MR. SNODDERLY: George, can I make two comments?

CHAIRMAN APOSTOLAKIS: Yeah.

MR. SNODDERLY: First, remember that also

the reason the Commission likes to have a letter before they discuss something is so that they can have time to consider the position. So we have to consider how we communicate these positions prior to --

CHAIRMAN APOSTOLAKIS: They usually have our slides well before the meeting.

MR. SNODDERLY: Okay, and then the other point I wanted to make concerns the importance of developing a position relative to Box 5 and 6. I personally believe that it's very important that the current incentives as presented by the staff for developing the standards -- I'm not concerned as much about holding industry hostage because if you do not have the --

DR. ROSEN: No, I mean the staff not holding industry hostage. I was saying that the industry holds the staff hostage. So you misunderstood.

MR. SNODDERLY: Oh, okay. Thank you. Thank you.

Well, the point I wanted to make goes to what you were saying, is that if you don't have -- usually the toughest part of the standard is there's some controversial aspect of either the fire PRA or the external events PRA, and in the absence of the

standard then the burden of these controversial issues goes to the reviewer and the ad hoc review, and you lose consistency.

CHAIRMAN APOSTOLAKIS: You're absolutely right.

MR. SNODDERLY: And so I do think -- and I'm sorry I misunderstood.

CHAIRMAN APOSTOLAKIS: No, you're all right.

MR. SNODDERLY: But I think that's an important policy issue.

CHAIRMAN APOSTOLAKIS: I would not want to get into Box 5 and 6 in our meeting with the Commissioners because we don't know. Even the staff hasn't reached the final conclusion. So for us to speculate -- so I think we should keep it at a high level. There seems to be consensus that, yes, this is a good interpretation, good thing to go ahead, and so on.

Technical issues we'll figure out some recognized words to say, maybe express some concern about being held hostage, not using those words.

DR. ROSEN: No, that's maybe not the right words. Just controlling the schedule.

CHAIRMAN APOSTOLAKIS: Yeah. Now, they

will not make a presentation, but do we want Gareth to be here?

MR. SNODDERLY: I think they should keep the date open on their calendar and Mario will have to make a decision.

DR. KRESS: Have we already put out a notice, Federal Register notice?

CHAIRMAN APOSTOLAKIS: I don't think so. Not for the full committee.

MR. HARRISON: It's on the Web.

CHAIRMAN APOSTOLAKIS: Okay. Then you have to be here. Don't give the whole presentation, please. I mean, it's --

PARTICIPANT: How much time do we have on that?

CHAIRMAN APOSTOLAKIS: An hour and a half? How much is it?

MR. MAGRUDER: Eight, thirty to ten.

PARTICIPANT: An hour and a half.

DR. BONACA: but this is of interest to the rest of --

CHAIRMAN APOSTOLAKIS: Yeah, but then we will go through the presentation again, and there will be no time to formulate any opinion, and then I'll have to go -- no. I want us to start formulating the

bullets.

MR. PARRY: Can I suggest maybe that what we maybe want to do is just provide that flow logic diagram and walk through that?

DR. KRESS: That would be --

CHAIRMAN APOSTOLAKIS: And the technical issues.

MR. PARRY: And the technical issues.

DR. ROSEN: Dana and others will take an hour and a half dragging you through that.

PARTICIPANT: You need to define the phases.

DR. SIEBER: Well, to me the phases' definitions are important because the way I envision this all happening is it's going to be like the New York Marathon. Everybody is going to start running, and South Texas is going to win, and they'll get to the last phase and here will come some slow bunnies that make it to Phase 2 and that's as far as they want to run

MS. DROUIN: But I think when you go through the flow chart, it defines the bases.

DR. SIEBER: It does. The definitions are there.

CHAIRMAN APOSTOLAKIS: Okay. Let's do

something together here so it will be like we're all together now.

Do we all agree that Slide 15 is very informative?

DR. ROSEN: Fifteen? Let me get to it.

DR. KRESS: Hold on, hold on.

DR. SIEBER: They're all informative.

MR. HARRISON: That's the staff review PRA slide.

CHAIRMAN APOSTOLAKIS: On page 8. People were saying they want to define the basis.

DR. ROSEN: But Phase 4 is controversial in my view.

CHAIRMAN APOSTOLAKIS: Yeah. So when he presents it, you raise your concerns, but is Slide 15 something we want Gareth to start with?

DR. ROSEN: Stop with?

CHAIRMAN APOSTOLAKIS: Start. Then definitely he has to present the two slides with the boxes. Maybe you modify them by then. It's three weeks from now, four weeks from now, right?

Now, what else do you think? The tasks, do you want to present the tasks?

PARTICIPANTS: No.

DR. ROSEN: Just that much, and Dana

Powers is two and a half hours.

DR. KRESS: That's all right.

CHAIRMAN APOSTOLAKIS: Excuse me, but Dana is also a member. What can you do?

DR. KRESS: But also Slide 30 you want to.

CHAIRMAN APOSTOLAKIS: Slide 30, Slide 30. I like the Slide 30, but let's not forget the presentation is by Gareth and his colleagues. Gareth and your colleagues, what else do you think you should present? It's your presentation, but you've got the idea now.

MR. PARRY: I think it would be useful to have the Phase 1, 2 and 3 slides because --

CHAIRMAN APOSTOLAKIS: Which numbers are these?

MR. PARRY: Those are ten, 11, 12.

CHAIRMAN APOSTOLAKIS: Fine, okay. All right. You start with ten.

MR. PARRY: Yes.

CHAIRMAN APOSTOLAKIS: Okay. Anything else that you would like?

Mario said something about standards.

MS. DROUIN: Can I ask a different question?

DR. BONACA: And 29.

MS. DROUIN: You have on the schedule an hour and a half. Are you telling us we're going to have the full hour and a half?

CHAIRMAN APOSTOLAKIS: No.

MS. DROUIN: Are you telling us you want us for a half an hour?

DR. SIEBER: Forty-five minutes.

CHAIRMAN APOSTOLAKIS: We want you to make a presentation, and then we will start formulating bullets and so on.

MS. DROUIN: Okay. So 45 minutes of which half of it we'll leave for discussion. I mean that's normally how we prepare.

PARTICIPANT: That's right. So you've got 20 minutes' worth.

MS. DROUIN: So we've got 20 minutes worth of slides you want us to prepare for.

CHAIRMAN APOSTOLAKIS: Which means ten slides.

MS. DROUIN: And we'll figure it out.

CHAIRMAN APOSTOLAKIS: So you don't want us to give you some idea which slides we like?

MS. DROUIN: No, no. I'm not saying that.

PARTICIPANT: I think we have just got about ten slides.

CHAIRMAN APOSTOLAKIS: Okay, great. But you've got the idea now. Did you take a note of --

DR. BONACA: I think the message they got was the interaction between the standards and the guidance and the possible progress. That has to be communicated somehow. When you talk about Phase 1, 2, 3, that will come out.

CHAIRMAN APOSTOLAKIS: Let me ask another thing of the subcommittee members. Why don't we let them go through the whole presentation? I suspect that some of the members may object to a shortened presentation. What do you think?

DR. SIEBER: I don't think you've got enough time.

DR. KRESS: You don't have enough time.

DR. SIEBER: I don't think you have enough time.

CHAIRMAN APOSTOLAKIS: Okay. So then it's a good idea to about ten slides. Okay? Ten slides.

And it's not log normal. It doesn't have an error factor with ten or 11, huh? And Mike will have prepared maybe a set of bullets, but I don't want to send them to the members who have not been exposed to anything here. Maybe should I send them only to you gentlemen in advance?

We can't do things in secret.

DR. ROSEN: No, no, no. Don't do that. Send them to everybody. The ones of us -- those of us who have been here will understand them better. Those who won't will be amazed.

CHAIRMAN APOSTOLAKIS: Then I'm going to show them here when we come here.

Okay, and I would appreciate it if you guys stayed for the whole hour and a half when we discuss the bullet in case we have questions.

MS. DROUIN: We will.

DR. ROSEN: Well, we have your bank account in our hands.

CHAIRMAN APOSTOLAKIS: One other thing, one other thing. I was talking to -- maybe we can go off the record now.

This meeting is officially adjourned.

(Whereupon, at 4:46 p.m., the Subcommittee meeting in the above-entitled matter was concluded.)

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

Rebecca Silberman
Official Reporter
Neal R. Gross & Co., Inc.

Attachment 1
Revision 2
3/18/2004

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** • **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)** • **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

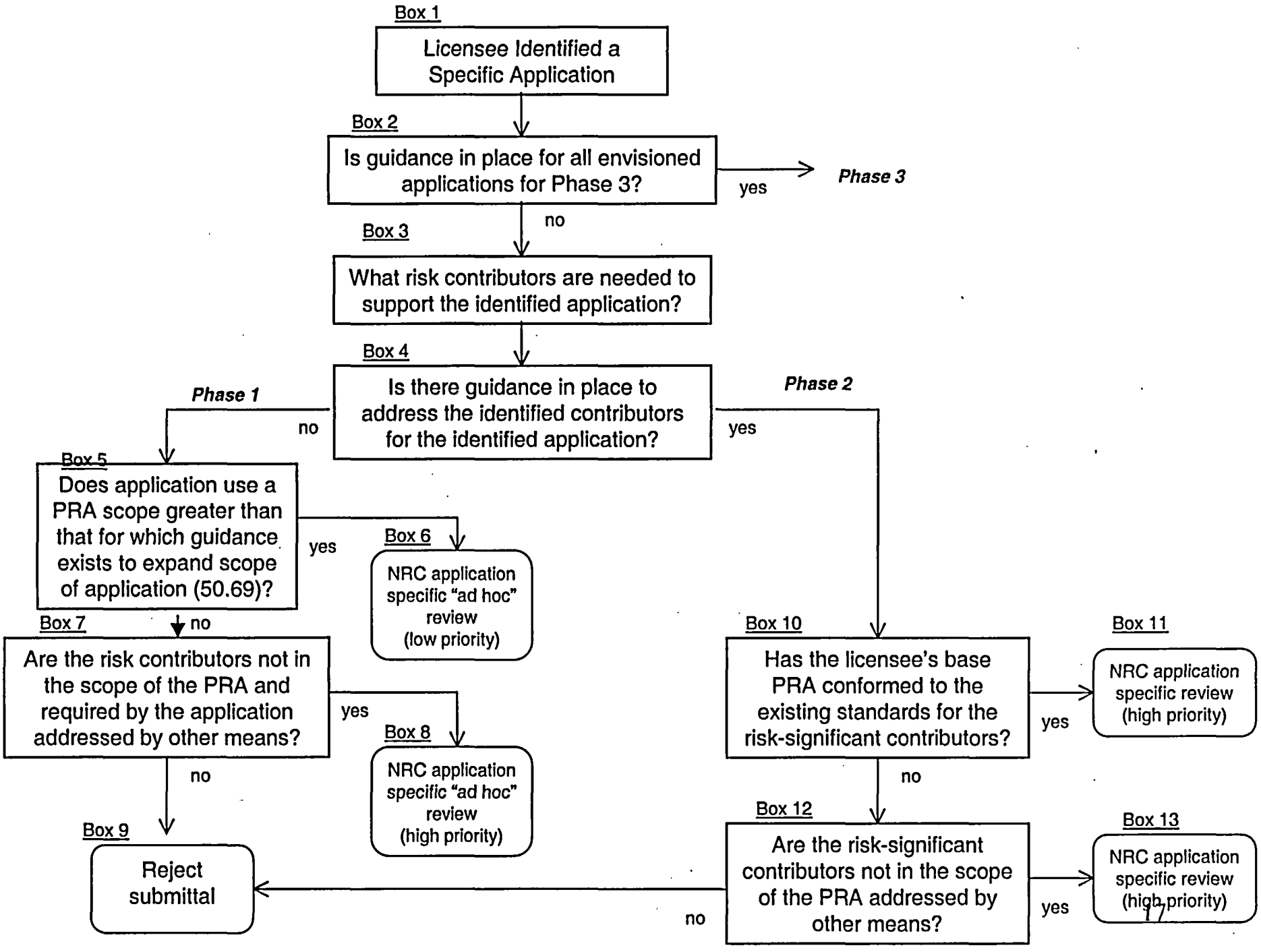
STAFF REVIEW OF PRA

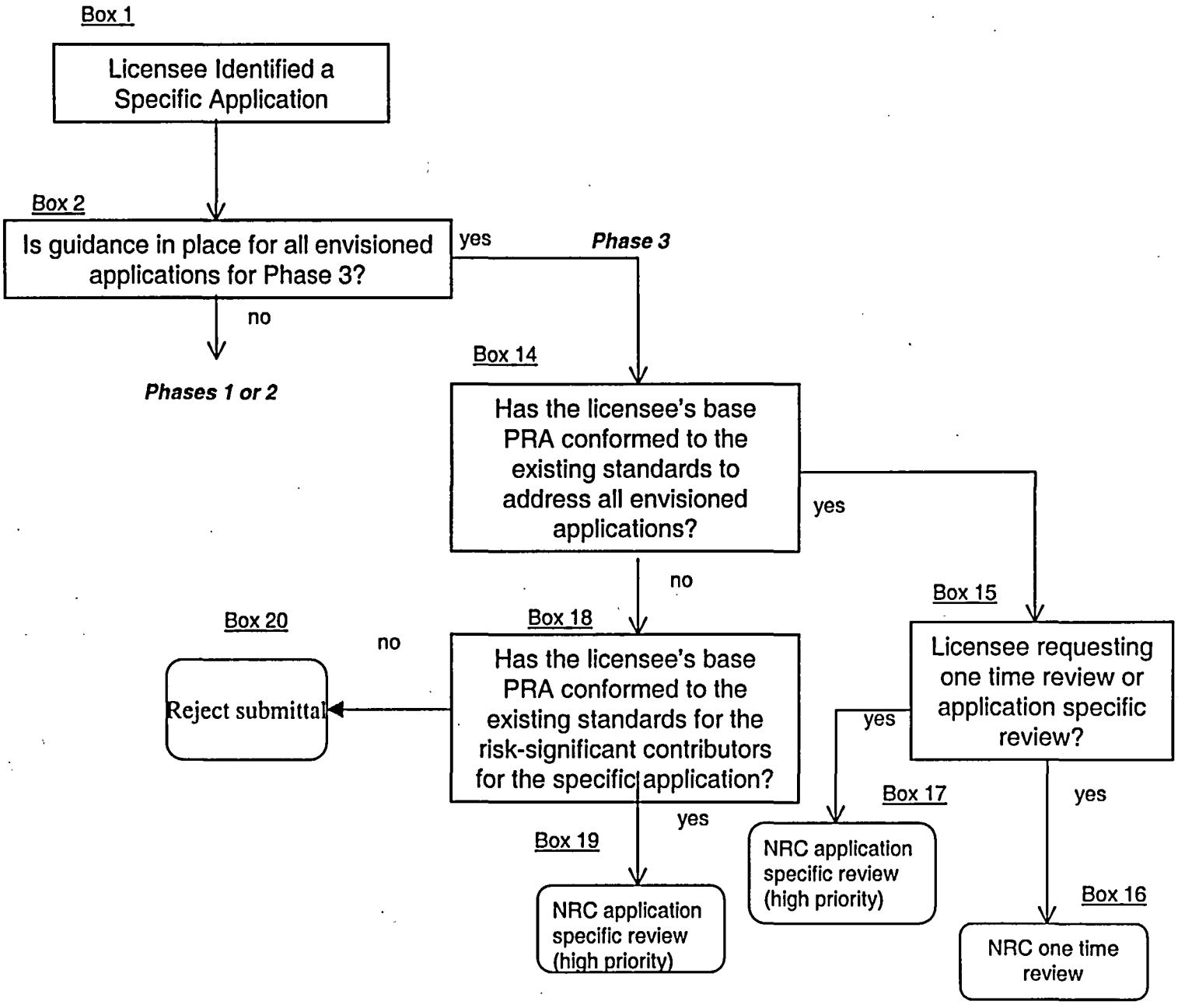
- Phase 1: ad hoc review
- Phase 2: reliance on peer review in accordance with RG 1.200 with audit for each application
- Phase 3: as for Phase 2 but performed one time sufficient to address all applications
- Phase 4: staff review and approval of base PRA

15

IMPLEMENTATION

16


Box 1
Licensee Identified a Specific Application
Box 2
Is guidance in place for all envisioned applications for Phase 3?
yes
Phase 3
no
Box 3
What risk contributors are needed to support the identified application?
Box 4
Is there guidance in place to address the identified contributors for the identified application?
Phase 1
no
Phase 2
yes
Box 5
Does application use a PRA scope greater than that for which guidance exists to expand scope of application (50.69)?
yes
Box 6
NRC application specific "ad hoc" review (low priority)
Box 7
no
Are the risk contributors not in the scope of the PRA and required by the application addressed by other means?
yes
Box 8
NRC application specific "ad hoc" review (high priority)
no
Box 9
Reject submittal
Box 10
Has the licensee's base PRA conformed to the existing standards for the risk-significant contributors?
yes
Box 11
NRC application specific review (high priority)
no
Box 12
Are the risk-significant contributors not in the scope of the PRA addressed by other means?
yes
Box 13
NRC application specific review (high priority)
no


Box 1
Licensee Identified a Specific Application
Box 2
Is guidance in place for all envisioned applications for Phase 3?
yes
Phase 3
no
Phases 1 or 2
Box 14
Has the licensee's base PRA conformed to the existing standards to address all envisioned applications?
yes
Box 15
Licensee requesting one time review or application specific review?
yes
Box 16
NRC one time review
no
Box 18
Has the licensee's base PRA conformed to the existing standards for the risk-significant contributors for the specific application?
yes
Box 19
NRC application specific review (high priority)
no
Box 20
Reject submittal
Box 17
NRC application specific review (high priority)

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 1and 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

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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

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STAFF AND INDUSTRY ACTIVITIES NEEDED TO IMPLEMENT THE PHASED APPROACH

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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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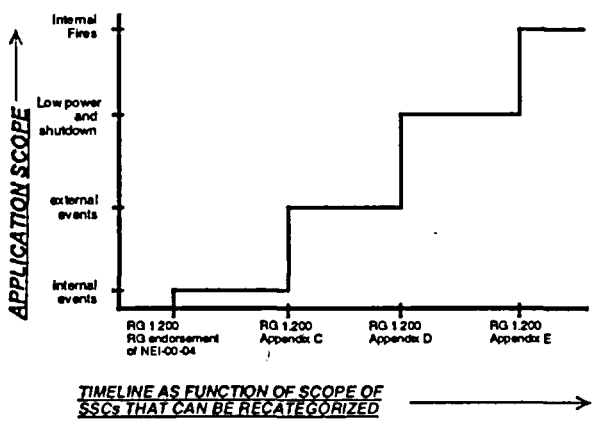
BACKUP SLIDE



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