

1 I would have thought that if you are
2 pretty close to a limit that's probably the reason why
3 you should go and redo the calculation.

4 MR. KENDRICK: I think we reviewed their
5 inputs to their -- the calculation, and they were all
6 -- all of the input values had been verified for the
7 licensee, the QA is verified, and we couldn't see a
8 reason that they would have to repeat the calculation.

9 MEMBER WALLIS: But the fact that you
10 considered whether or not -- you asked them whether or
11 not they had iterated several times indicates that it
12 is possible to tweak the number by iterating.

13 MR. KENDRICK: As with almost all
14 calculations where you have acceptance criteria, and
15 you do have some latitude in using tech spec values
16 versus measured values, there are ways that they could
17 have come under the criteria. And we did check a
18 number of inputs to make sure that they hadn't made
19 too many assumptions that we didn't agree with.

20 MEMBER WALLIS: But you didn't ask them to
21 make another input and see what happened?

22 MR. KENDRICK: No, we didn't ask them to
23 make another run in this case.

24 I might mention that when we do these
25 onsite reviews, we have full access to all of the

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1 calculation files, all of the input files, to the
2 design people, the independent verifiers, the
3 management -- technical managers, and to the QA and
4 licensing people.

5 MEMBER ROSEN: Can we go on to the plant
6 systems review, then? Okay? Ralph Architzel.

7 MR. KENDRICK: Thank you.

8 MR. ARCHITZEL: Good morning. I'm Ralph
9 Architzel with the Plant Systems Branch. I was the
10 lead reviewer in this case. We did have other
11 reviewers in the Plant Systems Branch, including Steve
12 Jones for the spent fuel pool, Rob Elliot looked at
13 some of the strainer delta P calculations, and Ron
14 Young in the petroleum and HVAC areas.

15 We do have a -- as Larry mentioned, we did
16 the telephone conferences and RAIs and additional --
17 we did perform -- I did perform one audit at the site
18 during the performance of this review. The audit was
19 focused on the ultimate heat sink and also reviewing
20 some of the NPSH calculations.

21 Plant Systems Branch does have a wide area
22 of responsibility, as you see on these next charts.
23 I'm not going to go over these. I'll try and save
24 some time.

25 But I do want to let you know there was a

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1 large -- large number of areas that the Plant Systems
2 Branch does review, and we've been asked to talk about
3 three of those areas during this meeting, if there's
4 no questions.

5 Those areas were the containment response,
6 the net positive suction head, and the ultimate heat
7 sink for Dresden only. Two of these items, in
8 addition to looking at the EPU effects, we also
9 examined -- there was existing licensing basis issues
10 that in addition to just concentrating on the
11 EPU effect we had to consider existing licensing basis
12 considerations during the course of our review.

13 Going up to the containment response --
14 Mark Kluge from Exelon has already gone over this also
15 -- but basically the analysis methods used conformed
16 with the ELTR-1, Appendix G, topical guidelines. The
17 licensee used M3CPT for short-term response. They
18 used LAM, which was noted in the ELTR, which is a
19 change, for mass and energy releases. And they used
20 superhex for the long-term containment response.

21 And some of these are code changes from
22 what was their previous licensing case. They're using
23 different codes at this time.

24 The containment pressure demonstrated a
25 small pressure increase due to the EPU, but you should

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1 note that the analysis did result in reduced pressures
2 from the licensing basis. So this actually results in
3 a reduced containment pressure from a licensing basis
4 standpoint, this EPU.

5 The wetwell pressure peaks higher than
6 previous. Regarding the suppression pool temperature
7 response, there was, as noted before, approximately an
8 eight- or nine-degree increase in the suppression pool
9 temperature. Additionally, the analysis methods were
10 another 10-degree increases, about a 20-degree
11 increase in the suppression pool temperature as a
12 result of these EPU and associated code changes.

13 This did impact the NPSH, but the
14 temperatures remained below the structural limits.
15 Regarding local temperatures in the suppression pool,
16 they demonstrated there was no stream entrainment in
17 the ECCS suction, and that addresses one of the GE
18 requirements for local temperature requirements for
19 the suppression pool.

20 Containment airspace temperature response
21 -- the peak temperatures do remain below design, as
22 noted earlier. The steam line break is the limiting
23 case and it -- before, and now it comes fairly close
24 to the limit, and it's terminated when the sprays are
25 turned on at 10 minutes. The EPU, in effect, was very

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1 small, and the containment dynamic loads remain
2 bounded.

3 That's all I had for containment system
4 response.

5 MEMBER POWERS: When you say the
6 containment dynamic loads remain bounded, explain to
7 me a little more what you mean by that.

8 MR. ARCHITZEL: What I mean is the
9 licensee went in and looked at the -- the analysis
10 that's done for the MARK-1 long-term program, and all
11 of the different condensation, oscillation, etcetera,
12 and the pool swell, and looked at the load definitions
13 there and made statements to us, they did those
14 analyses.

15 Those will be calculations at the site
16 that I did not look at that GE would have done. And
17 they made sure that those MARK-1 containment program
18 results were still within the analysis of the test
19 results and the bounding load definitions for
20 structures inside like the TORUS and the --

21 MEMBER POWERS: And so you just took --
22 you just took on faith that they had done those
23 correctly.

24 MR. ARCHITZEL: As far as the long-term
25 program bounding, yes. I did not look at the GE

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1 analysis for the -- for the dynamic loads.

2 MEMBER LEITCH: Concerning the containment
3 airspace temperature response, all four of these units
4 have deactivated the head spray line, have they? I
5 guess -- I don't -- there used to be head spray.

6 MR. ARCHITZEL: Do you mean inside the
7 reactor?

8 MEMBER LEITCH: Yes, that wouldn't --

9 MR. ARCHITZEL: I was talking about the
10 containment.

11 MEMBER LEITCH: I was thinking back to an
12 earlier issue.

13 MR. ARCHITZEL: That would be a reactor
14 system. I think the --

15 MEMBER POWERS: Are you speaking of the
16 drywell spray?

17 MEMBER LEITCH: No, head spray I was
18 talking about.

19 MR. ARCHITZEL: I'm not familiar with
20 that. I'd have to get back to you.

21 MEMBER LEITCH: Okay. It's --

22 MEMBER POWERS: Well, are the drywell
23 sprays intact?

24 MR. ARCHITZEL: I did not -- I assume the
25 drywell spray is still there and that's why the

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1 pressure turned at the 10-minute points. There were
2 no changes noted on the drywell sprays.

3 Going on to the net positive suction
4 issue, as noted earlier, the EPU does result in a
5 higher suppression pool temperature sooner in the
6 transient. ELTR-1 noted that this would be a
7 requirement for some GE BWRs, and both Dresden and
8 Quad Cities do need more credit for NPSH than they had
9 previously requested. Dresden had previously been
10 approved and Quad Cities had an application in.

11 The licensee used conservative assumptions
12 to -- different than the LOCA peak pressure
13 temperature assumptions to determine what the
14 temperatures and pressures would be for NPSH. A big
15 factor in this EPU, the existing licensing basis, was
16 the strainer differential pressure calculations and
17 accommodating the new strainers. And the differential
18 pressures they had result in a significant pressure
19 drop increase that they had to accommodate with this
20 EPU.

21 And that was incorporated. The procedures
22 and training had been given to the operators to
23 recognize cavitation and when to throttle back flow
24 and take credit for that at the 10-minute point and
25 other points during a transient in their emergency

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1 procedures.

2 And, therefore, they've requested -- and
3 the staff plans to approve -- overpressure credit in
4 a step-wise fashion to the accident end. And there's
5 a -- we could go and look at a curve, and I've got
6 that if anybody is interested on how that's approved
7 through the --

8 MEMBER WALLIS: You agreed with their
9 presentation, that they showed this bar graph where
10 what they need is so much and what's available is so
11 much, and it's always enough.

12 MR. ARCHITZEL: That's not -- I would not
13 agree precisely with those margins. I mean, they go
14 right to the limit in a step-wise fashion. There's
15 times when there's no margin. There's times when they
16 cavitate.

17 But can I show the backup here for a
18 second on this -- on the Dresden backup? I'm not
19 totally -- I mean, do you have the backup?

20 MEMBER WALLIS: It sounds as if your
21 evaluation was a bit more thorough than their
22 presentation. You looked at all of the conditions.
23 They looked at some of them.

24 MR. ARCHITZEL: Just give me one second,
25 because it's easy to show.

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1 MEMBER WALLIS: I'm not sure if I need to
2 see all of the details, but you looked at the whole
3 site while they just looked at a few points.

4 MR. ARCHITZEL: It's in the application.
5 Basically, if you look at -- this point here was --
6 the point I'm trying to make is just that this is in
7 their application, and you could present it
8 differently, but this point was one of the margins
9 presented. You do step down, so it is an average
10 margin as you go through with time. But you do hit
11 the actual available pressure curve with their
12 application and with what we're granting.

13 So I didn't want to totally agree with it,
14 but you can present data different ways, and --

15 MEMBER WALLIS: So, essentially, your
16 review was more thorough than their presentation as --

17 MR. ARCHITZEL: More thorough than their
18 presentation, but --

19 MEMBER WALLIS: I understand what you're
20 saying here, but that doesn't matter. I think we have
21 to move on.

22 MR. ARCHITZEL: The last item I have to
23 talk about is the Dresden ultimate heat sink, and the
24 EPU does affect the quantity and makeup required due
25 to the increased decay heat for the ultimate heat

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1 sink.

2 The isolation condenser is used for hot
3 shutdown for the 30-day duration in the event of a dam
4 failure. The isolation -- in several steps. The
5 initial shell inventory is credited for a 20-minute
6 duration. EPU only affects related to the shell
7 inventory, affects the minimum cooldown rate which
8 will be reduced. But, still, the 20-minute duration
9 is not challenged. It's that you may have less of a
10 cooldown during that initial 20 minutes.

11 In the short term, the isolation condenser
12 from makeup -- it's relied on from diverse onsite and
13 non-safety-related sources. This is before and after
14 EPU. There are a variety of onsite sources available
15 -- tanks, cleaned storage tank, and Unit 1 intake
16 canal. Again, these individually still can make the
17 20-minute -- the two-hour criteria that's available.

18 In the long term, after two hours, it
19 requires them two hours to establish makeup from the
20 ultimate heat sink, this is -- again, there's no time
21 impact associated with this, getting the two hours
22 established from the ultimate heat sink. And they
23 have procedures in place and tested to get that
24 online.

25 The available inventory -- and there are

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1 some diverse non-safety-related paths they're relying
2 on. Part of the reason for the ultimate heat sink
3 still taking some time to resolve is that there was
4 existing licensing issues associated with what they
5 credited at what time.

6 The available ultimate heat sink inventory
7 in the intake canal only has been now credited, and
8 that will be lasting four days under current
9 conditions. We're at 5.5 under the previous power
10 condition, so there is that -- that aspect of the
11 change.

12 The licensee is crediting portable low
13 head/high volume pumps to replenish the ultimate heat
14 sink from the river or they could also replenish it
15 from the discharge canal, but -- if there was water in
16 the discharge canal. And this is a previous credit
17 that had been addressed in the SEP program to obtain
18 these portable low head pumps, and the staff is
19 finalizing its review there and anticipates approval
20 of this methodology.

21 MEMBER WALLIS: You're not worried about
22 the state of the river after the dam has failed? I
23 mean, there may be no river, it may be another place.
24 It may be --

25 MR. ARCHITZEL: Well, that's a limiting

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1 case. And there is some concern there; however, they
2 still -- once they get it into the intake canal, you
3 still have some settling available. You still have
4 the intake rates.

5 In addition, there is a lot of inventory
6 in the other canals. You'd have to take a lot of non-
7 safety failures. If you're -- do not have the water,
8 like, in the intake canal or the hot or cold canal,
9 there's a lot of -- in the lake that's available. So
10 in a real sense, there are a lot of other sources
11 available, but with a seismic event they'd be gone.
12 So --

13 MEMBER ROSEN: But all of that was in the
14 current licensing basis, right?

15 MEMBER WALLIS: Apparently it was, yes.

16 MEMBER ROSEN: We're not talking about a
17 change to the EPU.

18 MR. ARCHITZEL: They have something that
19 would transition in the licensing basis that basically
20 we recognize an informed license at this time. There
21 has been changes in the ultimate heat sink through
22 time.

23 MEMBER WALLIS: Are there any other
24 questions at this point? I was wondering about the
25 materials degradation.

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1 MR. ARCHITZEL: The EPU impact is a timing
2 impact, but there are -- there is a need to define,
3 clearly, the licensing basis.

4 MEMBER WALLIS: Materials degradation
5 issues -- could we just maybe read these and ask if
6 Dr. Shack has any questions. Are you satisfied, Bill,
7 with what --

8 MEMBER SHACK: The only thing that
9 surprises me is just how high the wear rates are in
10 the feedwater line. I mean, at 20 mils a year --

11 MEMBER POWERS: And we're never changing
12 the line.

13 MEMBER SHACK: -- that's a healthy wear
14 rate.

15 MEMBER WALLIS: Unhealthy wear rate.

16 MEMBER SHACK: The increase is fairly
17 modest.

18 (Laughter.)

19 But the baseline is surprisingly high for
20 a line that you really didn't want to change.

21 MEMBER POWERS: The license renewal folks
22 will need to look at that one, I suppose.

23 MEMBER SHACK: Yes. I would think the
24 license renewal people would --

25 MEMBER WALLIS: Do you have any questions

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1 on the presentation that --

2 MEMBER POWERS: The applicant indicated
3 that he had no fatigue issues arising despite the
4 higher flows. His staff also find that to be the
5 case.

6 MEMBER WALLIS: I think the staff is
7 essentially agreeing with the applicant on these
8 issues, isn't it?

9 MEMBER POWERS: You found no instances of
10 -- where fatigue was a concern?

11 MR. NOLEY: This is Gonoma Noley from
12 Clinical Branch. We agree with the conclusion the
13 applicant had regarding the fatigue usage factor for
14 the safety and non-safety systems for the steam dryers
15 that were stresses -- maximum stresses from normal and
16 upset for bending a membrane, still below the
17 endurance limit for the standard seal.

18 MEMBER POWERS: Did we have any instances
19 where the CUF became close to one?

20 MR. NOLEY: I can't hear you.

21 MEMBER POWERS: Did we have any instances
22 where the CUF became close to one?

23 MR. NOLEY: No. You don't need to compute
24 the CUF if you are below the endurance limits.

25 MEMBER POWERS: This time I didn't hear

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1 you.

2 (Laughter.)

3 MR. NOLEY: You don't need to compute the
4 cumulative uses factor if you are below the endurance
5 limits for the material.

6 MEMBER WALLIS: So maybe we could accept
7 that you accept the applicant's view of materials
8 degradation issues, and the Committee has no further
9 questions on that matter? Is that a fair statement?
10 I'm trying to move us along. I don't think this is a
11 matter that we are worried too much about. I thought
12 we might move along.

13 I'm sorry not to give you a chance to give
14 your presentation.

15 MR. ROSSBACH: Donny Harrison will present
16 the PRA review.

17 MEMBER WALLIS: Maybe we can move along
18 faster this one, too?

19 CHAIRMAN APOSTOLAKIS: Let me ask a
20 question. You don't need to -- the numbers for core
21 damage frequency in LERF that the licensee presented
22 are fairly low, a few 10^{-6} a year. And the licensee
23 told us that their PRA had been reviewed by the BWR
24 owners group. Did you review it?

25 MR. HARRISON: No, I did not.

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1 CHAIRMAN APOSTOLAKIS: Not you personally.

2 I mean --

3 MR. HARRISON: No. I conducted the review
4 for the PRA Branch, and we did not look at -- we did
5 not perform a detailed review of the PRA model or the
6 system models. What we did do is look at the results,
7 look at the impacts that they provided as part of the
8 EPU, and looked at it for reasonableness.

9 CHAIRMAN APOSTOLAKIS: So you don't really
10 know whether the numbers they gave us are valid or
11 reasonable, and the delta CDF and delta LERF are
12 reasonable? And the reason why you don't really care
13 is because it's not part of the petition, is it? This
14 is not a risk-informed --

15 MR. HARRISON: This is not risk-informed.
16 They provide risk information -- I'm sorry. I didn't
17 introduce myself. I'm Donny Harrison. I'm in the PRA
18 Branch.

19 They provide it because the topical report
20 requests that they provide it. We look at it strictly
21 to gain insights into the plant as far as what the
22 impacts of the EPU are. We don't, for this type of
23 application, go and look at the actual PRA and
24 determine if it's acceptable.

25 CHAIRMAN APOSTOLAKIS: Okay. So there was

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1 a series of operator actions in one of the viewgraphs
2 of the licensee --

3 MR. HARRISON: Right.

4 CHAIRMAN APOSTOLAKIS: -- where basically
5 what was happening was the available time was reduced
6 by about 20 percent.

7 MR. HARRISON: Right.

8 CHAIRMAN APOSTOLAKIS: And then, what we
9 saw was that the impact on CDF was one percent or so.

10 MR. HARRISON: Right.

11 CHAIRMAN APOSTOLAKIS: Now, did you review
12 that part? What model did they use to make the
13 connection between the probability of human error and
14 the available time? Is that --

15 MR. HARRISON: No. We didn't look at --

16 CHAIRMAN APOSTOLAKIS: What model did they
17 use? Do you remember?

18 MR. HARRISON: We didn't go in and look at
19 the actual reliability analysis method. I do remember
20 from some slides that I saw probably back in July that
21 there's a variety of different methods they used. But
22 one of them was their -- it's an old method. I don't
23 recall off the top of my head what else, but there are
24 performance shaping factors they use to determine that
25 some things are cause-based and some things are time

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1 limited, and that's --

2 CHAIRMAN APOSTOLAKIS: Now, you said that
3 you -- basically, that although the PRA here is to
4 give you insights --

5 MR. HARRISON: As far as --

6 CHAIRMAN APOSTOLAKIS: -- I am perplexed
7 by that word -- "insights." What does that mean? I
8 mean, if we don't really get into the models and try
9 to understand what they're doing --

10 MR. HARRISON: What we're trying to gain
11 a perspective on is the impact from the power uprate
12 itself. And so what we're looking for is to basically
13 ask questions using the information that comes from
14 the various pieces of the submittal, and pursue those
15 to see if there's anything that would be a surprise.

16 For example, on the ultimate heat sink, we
17 went and asked a number of questions about their
18 seismic modeling, because that was identified as a
19 vulnerability. Well, it was a hole, if you will, in
20 the seismic margin analysis out of the IPEEE. And so
21 we pursued that.

22 And to answer Dr. Kress' earlier question,
23 even though there's not a specific criteria or a
24 guideline in Reg. Guide 1.174, what we were looking
25 for was this in an unacceptable condition. And so we

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1 were looking at this particular scenario because it
2 wasn't anywhere where we could actually tell what the
3 risk was associated with it.

4 So we look for things that stand out, and
5 then we pursue those to see what the impact was.

6 CHAIRMAN APOSTOLAKIS: Yes. But you say
7 in your viewgraph that the staff, in its review, used,
8 what, the safety evaluation of the IPEs and their
9 IPEEEs.

10 MR. HARRISON: Right.

11 CHAIRMAN APOSTOLAKIS: And as I recall,
12 one of the findings there was that the human error
13 probability for the initiation of standby liquid
14 control was particularly abused in the IPEEEs. Now,
15 does that insight from there give you an insight here?

16 MR. HARRISON: I don't recall that
17 particular piece but -- on Dresden. What I do recall
18 is that there were documentation questions on their
19 reliability analysis that came out of --

20 CHAIRMAN APOSTOLAKIS: The Dresden
21 reliability analysis or the IPEEE?

22 MR. HARRISON: Out of the IPEEE --

23 CHAIRMAN APOSTOLAKIS: IPE.

24 MR. HARRISON: -- IPE, yes.

25 CHAIRMAN APOSTOLAKIS: IPE.

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1 MR. HARRISON: We're both confused. Out
2 of the IPE, I think there were some -- there was --
3 the level of documentation -- that was back in the
4 early to mid '90s. Dr. Burchill has come on board in
5 the mid '90s, late '90s. And partly why we did a site
6 visit was to look at how do they maintain --

7 CHAIRMAN APOSTOLAKIS: I didn't mean that
8 Dresden abused it. It was a generic --

9 MR. HARRISON: It was a generic --

10 CHAIRMAN APOSTOLAKIS: Yes.

11 MR. HARRISON: Okay.

12 CHAIRMAN APOSTOLAKIS: Yes.

13 MR. HARRISON: I'm sorry. I thought you
14 were --

15 CHAIRMAN APOSTOLAKIS: No, no, no.

16 VICE CHAIRMAN BONACA: But the fact is if
17 you look at the CDF for this plant, it's one-tenth of
18 similar BWR-3, MARK-1 containment plan or less. And
19 so if you take CDF increase to be 10 percent, 10
20 percent of a very small number --

21 MEMBER ROSEN: Is very small.

22 VICE CHAIRMAN BONACA: -- is very small.

23 MR. HARRISON: This is the internal event
24 CDF you're referring to.

25 VICE CHAIRMAN BONACA: I understand that.

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1 MR. HARRISON: Right.

2 VICE CHAIRMAN BONACA: I'm comparing to
3 similar plans of similar designs that typically I've
4 seen with -- for the same CDF to be a factor of 10 or
5 more.

6 So, you know, we had a claim that there
7 was, I believe, a minor --

8 CHAIRMAN APOSTOLAKIS: Very small.

9 VICE CHAIRMAN BONACA: -- increase -- yes,
10 minimal changes in plant risk. Well, that's based
11 very much on what's in it, and --

12 CHAIRMAN APOSTOLAKIS: So they could do it
13 using 50.59, right?

14 VICE CHAIRMAN BONACA: And if this small
15 number is driven, for example, by optimistic operator
16 actions, then one is concerned because the ATWS event
17 is dominated by operator action, so far as -- do you
18 see where I'm going?

19 And so it would be nice to have insights
20 in this line of thinking, but --

21 MR. HARRISON: And this was a question
22 that partially came up as part of Duane Arnold as
23 well. Especially for the early initiation of slick,
24 which is typically four to six minutes into the
25 accident, that's the time that it's usually

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1 calculated.

2 For Dresden, they changed their -- the
3 model that they were using to determine that time, so
4 it -- I think it -- it was at six minutes. Let's stay
5 at six minutes with the methodology change. So for
6 them, they didn't change their human error
7 probabilities.

8 But that doesn't answer your question,
9 which is, is the base model acceptable? What we rely
10 on for that -- again, this is not risk-informed, so we
11 looked at the results of the BWR owners group review.
12 We asked some questions of the licensee. They provide
13 either simple calculations back to us or they provide
14 some additional results. And we make a judgment call
15 on the acceptability of that for this application --
16 again, with the application of --

17 CHAIRMAN APOSTOLAKIS: Yes. I have a
18 couple of questions here. One is, is the BWR owners
19 review the same as NEI's certification process?

20 MR. HARRISON: I think the BWR owners
21 group was the base upon which the NEI process --

22 MEMBER ROSEN: George, the BWR owners
23 group pioneered the certification process which is now
24 embedded in the standard, the ASME standard and the
25 NEI.

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1 CHAIRMAN APOSTOLAKIS: But it's primarily
2 NEI, though. Now, the way I understand that process,
3 how it works, is that they don't really declare this
4 is good or bad. They tell you, you know, for this
5 kind of application, this is what you should do.

6 MR. HARRISON: Right. They give you a
7 ranking.

8 CHAIRMAN APOSTOLAKIS: So it would be of
9 interest to see here whether that review said that --
10 or concluded that what they did was appropriate for
11 estimating human error probabilities when you change
12 the time available by 20 percent.

13 You know, the overall PRA may be very
14 good, but that particular point, you know, might be a
15 weakness, for example. And it's a weakness of the
16 state of the art, actually. I don't think it's
17 something that we do very well.

18 But the other thing that I'm just curious
19 -- maybe I don't understand the regulation -- this is
20 not a risk-informed application.

21 MR. HARRISON: Right.

22 CHAIRMAN APOSTOLAKIS: Yet we are looking
23 at 1.174. So what would you have done if the delta
24 CDF were above the 1.174 acceptable limits? It would
25 say, you know --

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1 MR. HARRISON: It would put us into --
2 and, again, I'll come back to the example on the
3 seismic failure of the dam. If there's an area where
4 we're not sure where we are, or if we think that the
5 number is, say, somewhere in the 10^{-3} range, 10^{-4}
6 range, we would pursue that under the -- we have a
7 risk regulatory information summary process that would
8 say, is this something that would rebut the
9 presumption of adequate protection?

10 And if it was something like that, then we
11 would pursue even further with the licensee to either
12 refine their analysis, provide additional detail to
13 show that they weren't an outlier. They may come back
14 -- I mean, if they just barely got into, say, the
15 higher region in Reg. Guide 1.174, they may be able to
16 argue that it's a conservative analysis, it's a
17 screening approach, and try to argue back.

18 But if they are clearly in that area, we
19 would pursue through the -- through that process. We
20 would notify the --

21 CHAIRMAN APOSTOLAKIS: But what happens I
22 think in this case is that the limit of 1.174 is not
23 really adequate protection limit.

24 MR. HARRISON: Right.

25 CHAIRMAN APOSTOLAKIS: So --

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1 MR. HARRISON: I'm just using it as a
2 guideline.

3 CHAIRMAN APOSTOLAKIS: -- you are
4 concerned about adequate protection, so what may
5 happen is that you approve the petition with a delta
6 CDF or delta LERF above the 1.174 limit, but still we
7 provide the adequate protection to the public health
8 and safety. I mean, that could happen.

9 MR. HARRISON: Right.

10 CHAIRMAN APOSTOLAKIS: Could it not?

11 MR. RUBIN: If I could add, Dr.
12 Apostolakis -- Mark Rubin from PRA staff -- yes,
13 you're absolutely correct, of course. The staff --

14 CHAIRMAN APOSTOLAKIS: Of course. I like
15 that.

16 (Laughter.)

17 Whatever you say now is okay.

18 (Laughter.)

19 MR. RUBIN: Maybe I've said enough.

20 (Laughter.)

21 The issue of pursuing risk information
22 where it's not a risk-informed approach was discussed
23 with the Committee previously when the Commission
24 letter was sent up.

25 And the intent was a slightly different

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1 twist from what we're seeing here -- was to deal with
2 situations where no risk insights or information were
3 provided at all, yet the staff thought that there
4 might be a potential, even though the regulations were
5 met, for some undue risk to creep in.

6 Here we have situations where licensees
7 are providing some or quite a bit of risk information,
8 yet they're not risk-informed. Some of those mean the
9 predominant or a major element of the justification is
10 not focused on the risk.

11 Even though they did provide information
12 and it's not risk-informed, we're still looking at the
13 1.174 guidelines as a good benchmark to give a feeling
14 of where they are. Clearly, if they were above 1.174,
15 there's a considerable margin between that and
16 adequate protection.

17 But as we discussed when we came before
18 the Committee on the non-risk-informed risk issues,
19 tripping the 1.174 guidelines would be the point where
20 we might start questioning adequate protection, and
21 then we'd be looking into it with a great more effort.
22 Here, we do not, you know, come close to that point.

23 MEMBER POWERS: It seems to me that one of
24 the issues that arises in connection with this looking
25 at the risk information is the staff had a concern

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1 that they may be introducing a new accident with their
2 runback. And, I mean, the licensee contends that,
3 well, that's a class of accidents that he already
4 recognized in his PRA, and I assume you looked at that
5 and agreed with that conclusion.

6 MR. HARRISON: On the particulars, what
7 often happens is we take the licensee submittal, and
8 I tend to look at responses to other questions that
9 other staff members ask in other branches. And often
10 times that raises a question in my mind as to how it's
11 being dealt with.

12 That's how we came across the question on
13 the main -- on the auxiliary transformer and the
14 reserve auxiliary transformer and pursued those with
15 the licensee. On the recirc runback, the licensee is
16 putting that in to offset the potential for increasing
17 turbine trips, because now they're running all of
18 their pumps.

19 We then asked if you're going to put in a
20 circuit that runs back to the pumps, what's the
21 potential for a spurious runback that now trips you?
22 And we were provided calculations and assured that
23 that was a small number.

24 We don't necessarily -- I don't look at it
25 to say, is this a new accident or is it not a new

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1 accident? I look at it more as, is there a scenario
2 that wasn't -- that could occur that hasn't been
3 analyzed? And, if so, what is the magnitude of that?

4 MEMBER POWERS: See, this is your
5 opportunity to get in good graces with the Chairman to
6 say, "This is what I mean by insights."

7 (Laughter.)

8 MEMBER WALLIS: So, George, are we ready
9 to move on?

10 CHAIRMAN APOSTOLAKIS: I am -- I have no
11 more questions. I almost said I'm happy, but I --

12 (Laughter.)

13 -- have no more questions. I like your
14 last bullet, though. I really do. I think it was
15 carefully drafted.

16 MR. HARRISON: Thank you. I wrote it.

17 (Laughter.)

18 CHAIRMAN APOSTOLAKIS: Very carefully
19 drafted.

20 MEMBER WALLIS: Do you have a bottom line,
21 John, that -- I don't see a bottom line here. Are you
22 recommending, or are you proposing to approve this
23 application?

24 MR. ZWOLINSKI: Yes, sir. I had some
25 closing remarks.

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1 MEMBER WALLIS: Right. Please.

2 MR. ZWOLINSKI: Well, one, I'd like to,
3 obviously, thank the Committee for the opportunity to
4 present our review of the Dresden and Quad Cities
5 extended power uprate. We consider our completion of
6 the Duane Arnold extended power uprate, as well as the
7 Quad Cities and Dresden, to be a major accomplishment
8 for the staff.

9 I'd like to again emphasize that the NRR
10 staff has undertaken an extensive review of these
11 applications. All areas affected by the power uprate
12 have been reviewed and evaluated by the staff. Staff
13 has critically examined the methodologies and their
14 application to this power uprate request.

15 We have concluded that all analytical
16 codes and methodology used in the licensing analysis
17 are acceptable for this application. The results of
18 the deterministic analyses have demonstrated that the
19 proposed increases in power level for the Dresden and
20 Quad Cities units are acceptable and meet regulatory
21 requirements.

22 Thus, the bottom line to the staff's
23 efforts in its review of this application is that we
24 would propose to approve the licensee's request in
25 going forward.

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1 I'd like to also mention that we feel that
2 extended power uprates will be submitted to staff for
3 quite some time, and, as such, we are proposing to
4 undertake a lessons learned of our activities, conduct
5 a workshop with the industry. We're going to take
6 data and input such as that received from this
7 Committee and others, and attempt to improve our
8 overall review process and streamline the process to
9 the extent practical.

10 You may recall that we are spending a lot
11 of effort in doing these reviews, on the order of 2500
12 to 3000 hours. Are we reviewing the right issues, the
13 right areas, to the right scope and depth? And we're
14 challenging ourselves in this lessons learned activity
15 as we go forward.

16 Other plants have docketed, and those
17 reviews are underway. Can we be more focused in our
18 review effort? And we're challenging ourselves to
19 work more effectively and efficiently, while we
20 maintain safety.

21 So with this, this concludes our
22 presentation, and I'd like to -- like to say that I
23 remain very sensitive to assure that high quality
24 products are issued by the agency. I believe we've
25 met that threshold on Duane Arnold. We'll meet that

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1 threshold with Quad Cities and Dresden.

2 MEMBER POWERS: You did not, in your
3 closing remarks, speak to the issue of the large
4 transient test.

5 MR. ZWOLINSKI: I'd be happy to provide
6 the Committee with the status of where that's at, or
7 ask Tad Marsh, my Deputy --

8 MR. MARSH: We have formulated an opinion
9 regarding the large transient tests, and we are
10 undergoing a senior management review of that opinion.
11 We recognize there are pluses and minuses associated
12 with this test, as you were pointing out. One has to
13 make a decision regarding all of the benefits and all
14 of the detriments that may be involved. So we
15 anticipate that decision either at the end of this
16 week or early next week.

17 MEMBER POWERS: Do you have any
18 reservations about the ability of this Oden Code to
19 adequately predict the plant response?

20 MR. MARSH: No, we do not.

21 MEMBER WALLIS: So what about the open
22 items? They will be resolved before you will issue
23 the amendment or --

24 MR. ZWOLINSKI: Yes, sir. Yes, all open
25 items will be resolved prior to issuance of this

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1 amendment.

2 MEMBER WALLIS: Are there any other --

3 MEMBER POWERS: Well, I'm -- I guess, Tad,
4 you gave me the wonderfully political answer that --

5 MR. MARSH: Yes.

6 MEMBER POWERS: -- senior management is
7 looking at this. You are not willing to share with us
8 the bottom line? Are we going to test or not?

9 MR. MARSH: Not at this point, because
10 it's -- it's still before our senior management. And
11 we -- just to be perfectly honest with you, there are
12 good technical arguments both ways with respect to
13 this issue. The staff has given its best argument,
14 and we're trying to weigh all of those various
15 arguments. And we recognize --

16 MEMBER POWERS: And there's a physical --
17 there's a philosophical -- we're going to accept the
18 ELTR-1 and 2. When it says don't do things, we ought
19 to say -- accept it when it's going to do -- when it
20 says do do things. That's the other --

21 MR. MARSH: That's certainly true.

22 MEMBER POWERS: But on the other hand,
23 ELTR-1 I guess is being modified by changes in
24 opinion.

25 MR. MARSH: The latest proposal in from GE

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1 is that they do not do these large transient tests,
2 and that is under staff review as well.

3 MEMBER POWERS: Does that open up all the
4 rest of the methodology for reexamination?

5 MR. MARSH: I don't believe so. No, I
6 believe that this is a narrow issue with respect to --
7 to the testing, these large transient tests and
8 whether these particular tests are needed to assure
9 construction, completion, adequacy, testing of an
10 operator action times. I don't believe it opens up
11 any broader issues than that.

12 MR. ZWOLINSKI: Dr. Powers, we've gotten
13 into the pros and cons, challenged our staff,
14 challenged the management team, and we are on a
15 balance scale. And we're in constant dialogue with
16 our senior management to resolve this particular
17 issue.

18 We're somewhat embarrassed that it has not
19 been brought to closure at this time, but it would
20 certainly be brought to closure before this amendment
21 is issued. So I feel we have the next week or two to
22 bring --

23 MR. MARSH: If the Committee would prefer,
24 we'd be glad to come with -- to you with our decision
25 in whatever way you'd like. There can be -- in the

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1 safety evaluation or a presentation, whatever you'd
2 prefer.

3 MEMBER WALLIS: I think that's something
4 for the Committee to discuss.

5 MEMBER POWERS: I guess I agree with
6 Professor Wallis that we need to look at the totality
7 of this and how crucial this transient test is --

8 MEMBER WALLIS: Right.

9 MEMBER POWERS: -- in our thinking.

10 MEMBER WALLIS: Right.

11 MR. MARSH: As we are as well with respect
12 to --

13 MEMBER ROSEN: I, for one, would like to
14 discuss it with the other members.

15 MEMBER WALLIS: Are we ready to move on?
16 Unfortunately, these uprates lead to lower operator
17 reaction times. We always seem to get longer reaction
18 times when we --

19 (Laughter.)

20 -- as a Committee.

21 CHAIRMAN APOSTOLAKIS: So your error
22 probability goes down.

23 MEMBER WALLIS: Our error probability
24 hopefully goes down, yes.

25 MEMBER POWERS: Professor Wallis, you beat

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1 yourself up too much. You should blame the staff for
2 inadequately arranging the agenda.

3 MEMBER WALLIS: No, the buck stops here.
4 I'm sorry.

5 (Laughter.)

6 Thank you very much, John, and the staff,
7 for your presentations.

8 MR. ZWOLINSKI: Thank you.

9 MEMBER WALLIS: I will return this meeting
10 to the Chairman.

11 CHAIRMAN APOSTOLAKIS: Thank you,
12 Professor Wallis.

13 We will recess until 2:15. Remember that
14 we have to interview some prospective candidates.

15 (Whereupon, at 1:05 p.m., the proceedings
16 in the foregoing matter went off the
17 record.)

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A-F-T-E-R-N-O-O-N S-E-S-S-I-O-N

(2:17 p.m.)

CHAIRMAN APOSTOLAKIS: We are back in session. The next item is the NRC Safety Research Program. Dr. Bonaca is the member responsible this time.

VICE CHAIRMAN BONACA: Well, we had a discussion yesterday afternoon and we defined an agenda, so I'll just leave it now to Mr. King, I guess, to lead. Oh, no, okay.

MR. ZIMMERMAN: Well, good afternoon. I'm going to introduce the team. We appreciate the opportunity to be meeting with you today to describe some of the accomplishment that we've had that we view as very important accomplishments. The initiatives that we have under way and some of the challenges that we have underway, and as always we look forward to your feedback and questions as we, as we discuss the topics.

Let me introduce first those individuals that will be making presentations. Following discussions by myself, Jim Johnson, who is a Special Assistant to the Office Director, Ashok Thadani, who would like to be here and passes on his regrets. He's on foreign travel. Jim will follow my discussion.

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1 That will be followed by Tom King, who is the Director
2 of the Division of System Analysis and Regulatory
3 Effectiveness.

4
5 Mike Mayfield, who is the Director of the
6 Division of Engineering Technology, will follow, and
7 I'm sure that there will be, during the interaction
8 and discussion, Scott Newberry, new to Research. He
9 joined Research -

10 MEMBER POWERS: But new to the Committee.

11 MR. ZIMMERMAN: About four months? About
12 four months ago, is the Director of the Division of
13 Risk Analysis and Applications. I've been with the
14 Office of Research since the latter part of March of
15 this year. And with that, we'll go ahead and begin.
16 On the first slide titled outline, and I'm going to
17 move through these slides at a pretty good pace. Make
18 sure you won't hesitate to slow me down when you want
19 to and speed me up similarly.

20 MEMBER POWERS: Well, maybe, maybe you
21 should go through this and you can give us an idea how
22 and if, and if concerns over, should we say, security
23 issues and liquid plants might impact the ability to
24 carry out other research programs.

25 MR. ZIMMERMAN: That's a good question and

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1 it's very, it's very timely because that's basically
2 the discussion that's been going on a lot just today.
3 There's a lot of information being passed back and
4 forth this afternoon. So I'll definitely touch upon
5 that. This slide really addresses what we're going to
6 be discussing over the next couple of hours. I want
7 to spend a little bit of time on our recent
8 accomplishments. Talk, obviously, about the good
9 report that you provide to us, advance reactors
10 discussion.

11 What we're looking at doing is swapping
12 the order and doing the refocusing and reinvigorating
13 item after the discussion on the ACRS Report. I'm
14 only, I've got a hard commitment at 3:30, and I wanted
15 to make sure, as much as I'd like to be here for
16 everything, I wanted to be here for the reinvigorating
17 if I had to make that decision along those lines.

18 CHAIRMAN APOSTOLAKIS: So you just
19 prioritized?

20 MR. ZIMMERMAN: Yes. I have nothing
21 against Tom's presentation. I have no doubt that it
22 will be, it will be very good.

23 MEMBER POWERS: So confident in fact you
24 don't need to be here, right?

25 (Laughter.)

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1 MR. ZIMMERMAN: And then we wanted to wrap
2 up on new challenges, some of the areas that Mike will
3 talk about in the materials area. And we're
4 interested in getting your thoughts as well,
5 obviously, as we look at anticipatory research, some
6 items that you feel that are appropriate for
7 considerations as we look into the preparation for the
8 outgoing fiscal years.

9 Okay, on Slide 2, recent accomplishments.
10 Jim is going to get into this, but I wanted to spend
11 a few moments on this particular slide at a high
12 level. And one of the things that we're trying to do
13 and it's not really, it's not a new initiative. It
14 may have been talked about before this committee in
15 the past, but it's very important for our office to be
16 able to clearly articulate what it's accomplished in
17 layman's terms so that we can explain to internal and
18 external stakeholders the work that we do and what
19 we've accomplished with the resources that we have,
20 both our staff and our dollars.

21 We have significant initiative underway in
22 our various documents, in our briefings, to make sure
23 that we are working hard in making those
24 accomplishments known. And it's not the issuance of
25 a new reg document by itself, it's how that new reg is

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1 going to be used and then finding out is it really
2 being used the way it was intended. It's, that's a
3 very important initiative.

4 And again, Jim will talk about it and I'm
5 sure we'll have some dialogue on it.

6 MEMBER POWERS: I guess I'm a little bit
7 surprised you didn't, maybe you thought it was
8 premature to highlight the, well I guess, you have a
9 spent fuel storage up there, but the risk analysis of
10 the spent fuel pool at decommissioning plants I
11 thought was a substantial research contribution in
12 there.

13 MR. ZIMMERMAN: And I would agree. And
14 there's others, the IP, IPEEE, we're completing the
15 IPEEE review and we feel that that's been a very
16 significant endeavor. It's not meant to be an
17 exhaustive list, there are others. And I agree, Dana,
18 with the one that you've mentioned. I'm not looking
19 at getting into each of these. If there's any here
20 that peak you interest, that you want to discuss, we
21 went through these in some detail during our recent,
22 recent NSRC Annual Conference that we had. Again,
23 with a, with the concept of wanting to be able to make
24 sure that our stakeholders understand the work that
25 we've done.

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1 And I realize that there are, these are
2 not new issues to you, you've been heavily involved in
3 them. And as Dana, the Designer, said, you can see
4 they may not be up here as well.

5 MEMBER POWERS: And I think it's important
6 to get a, I mean I agree with Roy that communicating
7 what's been accomplished is very important. And to
8 the extent that we can contribute to that in the
9 research report, we really ought to do that. And so
10 it will probably be useful to have a list that at
11 least approach comprehensiveness.

12 MR. ZIMMERMAN: In some common threads
13 that you had in your report, the expert panel from
14 former Commissioner Rogers had in his report, it
15 addressed this issue of communication. The purpose of
16 theirs was a little different, so they spent a little
17 bit more time on it. But that thread was in your
18 report, as you know, to us as well. And it is one
19 that is a significant one, as I mentioned before. So
20 unless there's anything particular on this slide, I
21 won't go into any of the individual --

22 MEMBER FORD: I've got a question,
23 however.

24 MR. ZIMMERMAN: Okay.

25 MEMBER FORD: You've listed two things,

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1 PRA and aging research. As two separate items, and at
2 the, I haven't seen any efforts to combine them, to
3 put a time component into PRA. There was a talk given
4 at the research conference two weeks ago, was it? Or
5 whenever it was. It was almost like a no giveaway.
6 It was a, well, it may, it may be funded, it may not
7 be funded. And yet I would have thought that this was
8 a fairly high-level leap. Is it going to be funded?
9 And is it a high-priority item?

10 MR. NEWBERRY: Yes. Scott Newberry. Yes,
11 there is a good amount of funding in the next fiscal
12 year's efforts to build upon work that was done in
13 this past fiscal year. Working, marrying the activity
14 in my division with Mike's. So there was a, I think
15 I'd call it a feasibility study looking at aging in
16 the feed water system. To really get into the physics
17 of aging, aging and incorporating it into a risk
18 model.

19 And the hope now is to move into items
20 that are a little bit more complicated. I think we're
21 thinking about looking at aging. Well, if the
22 materials are cable, I think this fiscal year is what
23 I think you're considering, yeah.

24 MEMBER POWERS: It's cable, I think.

25 MR. NEWBERRY: Yes, it will be funded, is

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1 the answer.

2 MEMBER FORD: You've listed down 5046 as
3 an accomplishment. Is that really an accomplishment
4 or is that work that's still underway?

5 MR. NEWBERRY: Yes/no. Accomplishment in
6 terms of the feasibility study building upon the
7 framework to indicate, yes we think that 5046 can be
8 risk informed. Certainly work underway to do the
9 technical work, and we're in the middle of that.

10 MEMBER POWERS: Yes, so I think we have to
11 treat that one a little more carefully.

12 MR. ZIMMERMAN: Okay, moving on. These
13 are just some additional areas that, we already spoke
14 about the risk in form, the consolidation of thermal
15 hydraulic codes, the work that's being done is steam
16 generation plan. Again, it's, as you put together a
17 list, it's where you want to stop and these are some
18 other ones that obviously are very --

19 MEMBER WALLIS: Well, these thermal
20 hydraulic codes were being consolidated when I came on
21 this committee, and that's about four years ago. And
22 I think it was probably the five year plan, maybe.
23 So, there must be about this, this babe must be about
24 to be born.

25 MR. KING: We're hopeful with this next

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1 fiscal year that the baby will be born. And we'll
2 have a working version.

3 MEMBER POWERS: I have to say that one of
4 the things that I was, have been very impressed by is
5 the use that you're being able, your making of
6 computational fluid dynamics and attacking some
7 particularly tough issues in mixing flows and
8 countercurrent flows. So impressed that I, I told
9 Commissioner Diaz he ought to get a briefing on it.
10 That, not that you had the answer yet, but that the
11 tool is being integrated into your capabilities to
12 respond to the Licensing Branch when they have these
13 tough thermal hydraulic questions.

14 I don't think you should be reluctant to
15 highlight. I think that's, that's a testimony to what
16 you've been able to do.

17 MEMBER WALLIS: It's an accomplishment,
18 it's been done.

19 MR. ZIMMERMAN: It's another example of
20 getting the message out. And I'm not sure if we've
21 briefed Commissioner Diaz yet. I know we have briefed
22 Carl Pepperella(phonetic). We are looking at, again,
23 explaining more of what we're doing so people have a
24 good --

25 MEMBER POWERS: I think you, I think

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1 Commissioner Diaz would just be very interested in
2 what you're doing and, not that you have final answers
3 yet, but that you're attacking them with that tool.
4 Because, you know what I mean, he has a thermal
5 hydraulics bent himself and he's interested in these
6 front-line --

7 MEMBER KRESS: For example, I think this
8 jet cutting of steam generator tubes, I think you used
9 that --

10 MEMBER POWERS: Yeah, but you know we
11 didn't believe those results, Tom.

12 MEMBER KRESS: I know, I know, but that
13 was a place where you can highlight the use of that
14 CFD. Plus on this steam generator mixing issue.

15 MR. ROSEN: Roy, you know I've been, well
16 I'm like the new guy on the block here. And for all
17 those years I looked at what the NRC was doing with
18 research and wondered about it. And I would like you
19 to comment on, overall, do you take a prospective
20 strategic point of view, looking at all the pieces,
21 and say where is the risk to the public's health and
22 safety?

23 And make sure that you're putting the
24 puzzle together in a resource constrained environment
25 in a way that does, in fact, put the money, the

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1 public's money on the things that, where there maybe
2 aspects of unknown risk. Do you have some sort of top
3 down process that does that?

4 MR. ZIMMERMAN: We do that a
5 prioritization process. It's an algorithm that does
6 have weighting factors into it. It focuses on all of
7 our four performance goals, but it's weighted toward
8 maintaining safety. So we do have that. The key is
9 that through the course of the year we know that
10 reactive work is going to come, it's the nature of the
11 job. That will occur.

12 And we have to have the process for how we
13 add on new work that needs to be done and shed other
14 work or postpone other work. And bringing that into
15 play, from the, along with the original planning that
16 was done, and integrating it is really the key that
17 you can do that in real time. We have to have a
18 ranking so that when the new work comes, you have a
19 way of doing it. And the other piece you have to
20 bring into play is the fungibility.

21 That the individuals that may have to do
22 this new work, may not be the same people that, you
23 know, that you were originally planning on shedding
24 this other work to do it. We've got to bring in the
25 reality of the fungibility of the individuals, whether

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1 they be our staff or a Contractor's.

2 But I guess the more directing us there
3 is, yes we do have a process for ranking our work.

4 MEMBER FORD: On that issue, do you have
5 a metric for your success? I remember at your, at the
6 presentation to the Commissioners, following Dana's
7 report, there was some of the beating of the chests
8 about your decreasing funds over the last however many
9 years. One way around it is to show by metric what
10 you're contributing to improving the safety. Do you
11 have such a metric? And do you use it to get more
12 money?

13 MR. ZIMMERMAN: We have, well there are,
14 in terms of getting more money, I mean set aside
15 September 11th --

16 MEMBER FORD: Yeah.

17 MR. ZIMMERMAN: -- we compete with other
18 offices on, you know, on basically a level playing
19 field to be able to explain how we have, have
20 prioritized our work. And again, we need to get
21 better and I think we are getting better. I'm
22 relatively new on the block in research, obviously.
23 But I think that, it's an area that we still need to
24 get at. We have such expertise in our office, that it
25 is obvious to the person who's doing the work the

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1 benefit of what they're doing.

2 I mean it's a little bit of the forest and
3 trees, and they understand it and may not immediately
4 understand why it's being challenged or questioned.
5 In fact, human nature kicks in and you get one or, you
6 know you're --

7 MEMBER FORD: You just get defensive.

8 MR. ZIMMERMAN: -- you just don't want to
9 be challenged because you have a defensive reaction to
10 it. It's just human nature. But we need to do that
11 to ourselves to be able to break down what is the
12 deliverable? What is ultimately going to come out
13 that an objective audience is going to look at? And
14 is it going to agree with us on it's own merits if
15 this is work that's worth doing. Whether it is for
16 maintaining safety or reducing the necessary burden or
17 any of the four performance goals. And we're not
18 quite where we need to be on that, but we're getting
19 better at it.

20 MEMBER WALLIS: I think your answer is you
21 don't have a metric. You have a sort of qualitative
22 argument that we have these objectives and we met
23 them, but that's not the same thing as having a
24 measure.

25 MR. ZIMMERMAN: Our metric at the highest

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1 level for your performance plan is that we're going to
2 complete 40 tasks.

3 MEMBER WALLIS: Umm hmm.

4 MR. ZIMMERMAN: That doesn't communicate
5 very well. Right? That's not the metric that we
6 want. So we're working to say that's not good
7 communication. What is a better communication
8 vehicle? And what we're doing is we're identifying
9 the top priority items that we can define. We're
10 putting timeliness goals on those, and we're saying
11 that we're going to meet the timeliness of these top
12 ten things that we're working on in our office.
13 That's the change that we've made from saying we're
14 going to do 40, 40 things.

15 MEMBER WALLIS: Well, if you had something
16 like there's a risk uncertainty reduction worth or
17 something, I mean that's some kind of a thing which
18 you can measure. You could say, yes, when we do this
19 research, this --

20 MEMBER POWERS: I just have to interject
21 and say I have watched, over the last 20 years, at
22 least three organizations, one national laboratory and
23 two private organizations, go through various attempts
24 to find a metric. And you cannot. And it never
25 works. And there's no point in doing it. What Roy is

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1 talking about where you say, look, here's how we fit
2 into the overall scheme of things and here's what
3 we're doing in accomplishing -- it's what you need to
4 do here.

5 There's not a number you can attach to
6 these things and come back and say, uh uh, my number
7 is up two tenths or down three tenths and what not.
8 No single member is going to communicate all that they
9 do.

10 MEMBER KRESS: I'd like to, I'd like to
11 second that comment --

12 MEMBER FORD: I'd like to argue that one.
13 If you look around this country and the world in fact,
14 unless you haven't that trick you will have.

15 MEMBER POWERS: Now I have watched Dupont
16 Central Research go through this, I've watched Eastman
17 Kodak go through this, and it never works.

18 MEMBER FORD: Eastman Kodak is about to go
19 down the drain.

20 (Laughter.)

21 MEMBER POWERS: Not probably because of
22 the research program.

23 (Laughter.)

24 MR. ROSEN: Well, maybe because they put
25 their money on the wrong thing.

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1 VICE CHAIRMAN BONACA: Let me just say one
2 thing, I would like to interject. Maybe I was remiss
3 at the beginning of the meeting not to define further
4 what the purpose of the presentation was.

5 (Laughter.)

6 VICE CHAIRMAN BONACA: And I apologize
7 for, I just jumped out from introducing to this and
8 then I just, okay, so I assumed, and I was wrong, that
9 everybody understood. What happened is that we every
10 year write research report. And we had a plan to
11 write a very focused report this year. Focused
12 probably on new reactors and providing some feedback
13 to research regarding their closure or recommendation
14 from the 1990, from the 2001 report. And we met with
15 Research yesterday. They told us that they were
16 talking about many more things than just simply the
17 reactors.

18 And so the purpose of this meeting,
19 really, is to hear the message they have to give us on
20 all these different areas, and then at the end of this
21 meeting to regroup as a committee and decide whether
22 or not our focus is going to be different the report.

23 We still intend to write a more concise
24 report than last year, because last year was a
25 comprehensive one. It addresses many areas of

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1 research and I believe that there isn't something we
2 can decided about that.

3 MEMBER POWERS: I think we can just focus
4 on cutting out the heavy section of steel research and
5 that would be fine.

6 (Laughter.)

7 VICE CHAIRMAN BONACA: So, no, but I just
8 wanted to, I wanted to just, just make sure that we as
9 a committee, you know, follow this path. I mean we
10 are all trying to get to the end of this meeting and
11 understand how, you know, how come this report finally
12 decision on what this research report should contain
13 for this year. The intent being, again, that it
14 should be focused on some lesser items than last year.
15 Touch some new issues, and certainly new reactors is
16 a new issue that we spent quite a bit of time already
17 this year looking at it.

18 MR. ZIMMERMAN: Okay, I'll move on. And
19 I think some of the discussion that we had will come
20 up during the reinvigorating discussion again. In
21 moving to the background slide, we had the benefit,
22 this past spring, to have your report, which was very
23 broad and thorough in scope. We had the expert panel
24 report which was very good. We also have the National
25 Lab Report coming together. So we had great, great

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1 input coming in to assist us.

2 And there was common threads that existed
3 between those, between your report and the others.
4 And I just wanted to spend a moment on those as we
5 start to gravitate into your report. One of them,
6 that we already talked about, was the communication
7 and the need for that. Another one was the need to
8 maintain core competencies. And we fully agree with
9 that.

10 You had indicated in the report the
11 importance of identifying those areas that we felt
12 were very important that we maintain those core
13 competencies. Areas that either contract expertise
14 didn't exist, or if it did exist, we really, the
15 feeling was it needed to be in-house as well. And we
16 fully agree with that and we have done that and
17 identified where those areas are.

18 You also talked about preparing for future
19 challenges. Advance reactors, risk control framework
20 and the like. And we are fully on board and
21 supportive and agree with those. And again, it was
22 consistent with what we saw in other reports. The
23 issue on PRA about improving the standard on PRA and
24 the robustness and vastness of the use of the PRA, we
25 agreed with as well.

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1 So there was a lot of commonality and
2 common threads. The ACRS report, as you know, was
3 briefed in May. The SRM quickly followed and then in
4 July we provided our response to the SRM, which is
5 really aimed at looking at what areas, research fill,
6 we should continue with work activities where ACRS had
7 recommended sunseting was a specific area of the SRM.

8 We provided our response back on July
9 20th. We neglected to send a copy of that response to
10 the ACRS, and I wanted to formally apologize for not
11 having done that. We should have done that at that
12 time. And we're going to talk about some of those
13 individual items as we go forward.

14 We were able to take your input and use it
15 to inform our budget process to some degree for fiscal
16 year '03. Some of the work was already in our '02
17 budget, so there was already alignment. Some of the
18 areas were, again, we were in agreement. We were able
19 to get them into our '03 budget, but the timing was
20 such that we didn't have a whole lot of time to do it.

21 We did what we were able to and we will
22 continue to do that as we start to work on the, on the
23 '04 budget process as well. The question came up
24 before about what is the impact of September 11th, on
25 this? We're going to need to wait and see, but I

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1 don't think we're going to have to wait too much
2 longer. One of the things that's going on right now
3 is that we are very actively working with OMB about
4 what our needs are and they're reviewing our other
5 work and it goes back again to setting our priorities.

6 And if we have to, if we don't get all the
7 funding that we're looking for or making our best
8 case, if it turns out that we need to do what we call
9 an add shed process as a result of that, not just
10 within this office but how it affects other offices,
11 we'll be prepared to do that. Okay, again we really
12 appreciated the time and effort that went into the
13 report that John gave. It was very broad and
14 encompassing and it was a great assist to us.

15 There were a number of areas. Obviously
16 you had recommended additional research. Examples
17 like high burn up fuel are examples where we have got
18 those areas into the '02 budget. Recommendations for
19 closure, we're going to talk about those in a couple
20 of minutes. Let's keep going. I think I've already
21 talked about those items. Move on to Slide 7. Again,
22 we've expanded the testing program on high burn up and
23 various types of planting material.

24 We're looking at what can be done with
25 PHEBUS for severe accident conditions. Those are

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1 areas that now are funded for '02. On the last bullet
2 we are doing the pebblebed preapplication review and
3 supporting NRR on the AP-1000 preapplication review.
4 So there's a number of areas where the issues you've
5 raised we're fully engaged in.

6 On Slide 8, we get into the four areas
7 where it was recommended that we bring work activities
8 to closure. On the Control Room Design Review and the
9 vessel lower head failure research we're in agreement.
10 Those items are being brought to, brought to closure.
11 We are sunseting those activities. On Slide 9, I
12 think it's a little bit more of a mixed bag, and I
13 think on these two I'd be looking to see if Tom can
14 talk a little bit about the common cause failure
15 aspects and then Scott on the ATHEANA Program.

16 MR. NEWBERRY: I'll take them both, okay.
17 Now without going into too much detail, these were two
18 areas that the committee recommended sunseting and
19 we're proceeding to that in what I guess I'd call an
20 orderly way. I just signed paperwork this morning on
21 the common cause, where we were, we have wrapped up
22 the methodology work and would only complete this
23 fiscal year remaining inside reports from data that is
24 being put together. And so the program will
25 essentially be sunset this fiscal year, consistent

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1 with your recommendation, I think.

2 Of course we would continue to gather
3 operating experience data from plants. And should
4 there be common cause information there, we would
5 continue to gather that at some level. And Pat
6 Baranowsky(phonetic) and Steve Mays have initiated a
7 program to be much more efficient there in terms of
8 creating a web-based program. I think eventually
9 we'll get over there and talk to you about. That's,
10 I think, very exciting, moving away from hard copied
11 paper reports, new regs, something that would be
12 available on-line should we be able to make it
13 publicly available, which is another issue.

14 CHAIRMAN APOSTOLAKIS: What's ICDE?

15 MR. NEWBERRY: It stands for, that's an
16 NEA, you know, an international common cause data
17 exchange activity, where we meet periodically with
18 international counterparts to exchange data, and
19 discuss use and insights from the data.

20 CHAIRMAN APOSTOLAKIS: Are you getting any
21 useful information from our international partners?
22 I mean are they open enough to tell you what's going on
23 in their plans?

24 MR. NEWBERRY: I can give you a general
25 answer without specifics, and Steve Mays is sitting

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1 back there shaking his head yes, absolutely. I
2 haven't been briefed on the very recent meeting up in
3 Ottawa where we, Pat was up there. But I think the
4 answer is yes, George, but I can't go into detail.

5 CHAIRMAN APOSTOLAKIS: That's worth
6 spending whatever it's --

7 MR. KING: It's very inexpensive. It's
8 like 15, 13k a year is our membership fee and a couple
9 of meetings, but we get the data from all the
10 participants.

11 CHAIRMAN APOSTOLAKIS: Right. So even
12 though your budgets are going down, 13k -- all right
13 fine.

14 MR. NEWBERRY: Okay. I think we're
15 scheduled to eventually get over here and talk to you
16 not only about, you know, about our human reliability
17 plan. I believe the committee has it. We're working
18 to get a meeting up. I think we were planning sooner,
19 but I think we're going to have to, that's one of the
20 impact items from 9/11. The staff that I have working
21 in that area --

22 MEMBER POWERS: Yeah, let me emphasize to
23 you that that meeting should be held when you're
24 ready.

25 MR. NEWBERRY: Okay.

1 MEMBER POWERS: And not on some schedule.
2 Because it's more important that you be ready for the
3 meeting, than it is to have it in some particular date
4 or something like that.

5 MR. NEWBERRY: Okay, thank you. But just
6 commenting on that particular item, we plan to proceed
7 with sunsetting the developmental activities
8 associated with ATHEANA moving more into its
9 application and quantification.

10 CHAIRMAN APOSTOLAKIS: Let me understand
11 that though, I don't understand it. You will proceed
12 with the application of something that has not been
13 developed? But you will stop its development?

14 MR. NEWBERRY: It's my understanding that
15 we will use what has been developed to date.

16 CHAIRMAN APOSTOLAKIS: To do what?

17 MR. NEWBERRY: To assist us in --

18 CHAIRMAN APOSTOLAKIS: In more
19 development?

20 MR. NEWBERRY: No, to assist us in the
21 pressurized thermal shock, steam generator tube
22 rupture, and other risk studies or assessments we're
23 doing to support, you know, regulatory applications.

24 CHAIRMAN APOSTOLAKIS: But you don't plan
25 to stop the development of human reliability methods?

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1 MR. NEWBERRY: No, no, no. Well --

2 CHAIRMAN APOSTOLAKIS: I mean that would
3 be something that would be a separate effort, after
4 ATHEANA?

5 MR. NEWBERRY: I'm really not prepared,
6 George, to go into the details on that. But I do know
7 right now that the basic thrust of our efforts is to
8 move away from investing much more in the
9 methodological development of ATHEANA itself.

10 CHAIRMAN APOSTOLAKIS: So when we say
11 that, I'm wondering what we mean. I mean ATHEANA as
12 it stands today in terms of its objectives and the
13 people who are doing it and so on, you plan to sunset
14 that and then do something about human reliability
15 again, right? Maybe with a new project or a new
16 people, new ideas, or using a number of ideas from
17 ATHEANA? Because our report never said that, you
18 know, that the whole thing is useless. I mean we just
19 said, look, you were supposed to develop a
20 quantification method. It's been a while now and you
21 haven't.

22 MR. NEWBERRY: Right, we're going to move
23 ahead with the quantification and its support in these
24 other applications. I think that's all I'm prepared
25 to get into. I haven't got into it myself in the time

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1 I've been on the job, frankly.

2 MEMBER POWERS: We have a plan that
3 they've sent us.

4 CHAIRMAN APOSTOLAKIS: Yeah, I've seen
5 that.

6 MEMBER POWERS: I mean ordinarily we would
7 have, be following this meeting up with a subcommittee
8 meeting and they've got the major players playing too
9 many roles right now.

10 CHAIRMAN APOSTOLAKIS: So is the
11 quantification, let's say we follow the plan that Dana
12 mentioned and all of a sudden we have a flash of
13 brilliance and in six months we have a great
14 quantification method. Would that be part of ATHEANA
15 or you will call it something else?

16 MR. NEWBERRY: I don't know. You'll have
17 to come talk about that.

18 CHAIRMAN APOSTOLAKIS: Okay, the memo that
19 was not sent to us says that the staff believes that
20 the ATHEANA distinction between the likelihood of the
21 aeroforce in context and the condition or probability
22 of the unsafe act, given the aeroforce in context, is
23 appropriate for any human reliability analysis method.
24 The six were developed and proved estimates of the
25 likelihood of safe acts.

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1 And then it goes on to defend that
2 concept. We never said anything about that.

3 MR. NEWBERRY: And my understanding from
4 what you're reading, there are reasons why it wasn't
5 sent to you.

6 CHAIRMAN APOSTOLAKIS: Because of that.

7 MR. NEWBERRY: I can't answer all those
8 questions.

9 CHAIRMAN APOSTOLAKIS: Anyway, it's a
10 little more defensive.

11 MR. ZIMMERMAN: Well, it looks like this
12 is a topic that needs additional dialogue.

13 CHAIRMAN APOSTOLAKIS: I guess when we
14 review the human reliability plan, this then will come
15 up.

16 MEMBER POWERS: Yeah, I think we've, we
17 let them get their plan together and come talk to us.

18 CHAIRMAN APOSTOLAKIS: The thing is that
19 we also have to tell something about the plan, what to
20 put in the research report.

21 MEMBER POWERS: Well, I think, I think we
22 just have to reserve comment until we've had a chance
23 to let them explain this plan to us thoroughly.

24 CHAIRMAN APOSTOLAKIS: Well, we may even
25 have the subcommittee meeting before there is a

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1 research report.

2 MEMBER POWERS: Well, I think it's
3 important that we not try to jam that, that
4 subcommittee meeting in on top of everything else that
5 the principles are playing. I mean I think that's
6 just --

7 MR. NEWBERRY: I think it's fair to tell
8 you right now that the people doing this work have
9 stopped working on it. They are being deferred
10 virtually 100 percent to other activities.

11 MEMBER POWERS: I think we've got a little
12 ways, I mean I think we've got a while. And my
13 feeling about it is that they formulate plan, I may
14 not understand everything that's in that plan, but I
15 think I can. It's just a matter of getting together
16 with them. There's no point in getting together with
17 them until they've had a chance to prepare a good
18 discussion on it. Because it will be a good
19 discussion. I mean good in the sense that it will be
20 interesting to everybody.

21 And I think if that runs afoul of our
22 schedule that we just say, well, we're not going to
23 talk about that right now. You've just got to be
24 fair, because you can't ask these guys, they're
25 already working 14 hours days.

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1 CHAIRMAN APOSTOLAKIS: I think we're
2 understanding of that. It's just that I thought we
3 were going to, I mean these are the only two topics in
4 fact where you disagree with us. So, these two,
5 right?

6 MR. NEWBERRY: Well, my reading on it --

7 CHAIRMAN APOSTOLAKIS: Well, you disagreed
8 by your mission with another one. Because if I go to
9 your last slide, Roy, Number 10. And then I go to the
10 Research Report, Volume 4, we had about a page on
11 decision making methods, and you are completely
12 silent, so far at least. Is it something that you
13 don't plan to pursue and you disagreed with us?

14 MR. JOHNSON: There is a small scale in-
15 house effort underway right now. But it's all done
16 in-house and I would presume that when we've
17 established the elements of a, of a program, then it
18 will go much broader. Right now we're just looking at
19 how one would take uncertain information and use it in
20 the decision making as opposed to looking at any
21 formal decision methods now in terms of laying out --

22 CHAIRMAN APOSTOLAKIS: So you are
23 disagreeing with us?

24 MR. ZIMMERMAN: I don't think it's a
25 matter -- you'll see it Jim, it says it differently

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1 than this. To me it's not so much that we disagree,
2 it's that in the, in the hierarchy of what we
3 prioritized this item came in in a place that we have
4 a modest effort underway now. It's not, it's not
5 tabled, it's not that nothing is going to be. We are
6 going to invest time and effort into it, it just may
7 not be on a robust a scale or time period that maybe
8 desired.

9 MEMBER POWERS: I think, if I recall the
10 wording, it was not drop everything and look into
11 decision methods. Think about, is there something to
12 be done here? I mean it sounds like you're responding
13 at the same level of urgency as the wording in the
14 report.

15 CHAIRMAN APOSTOLAKIS: Have you read the
16 letter of the committee on the revised oversight
17 process?

18 MR. JOHNSON: Say again?

19 CHAIRMAN APOSTOLAKIS: Did you read the
20 letter of the committee on the revised oversight
21 process?

22 MR. JOHNSON: No, I did not.

23 CHAIRMAN APOSTOLAKIS: Maybe you should.
24 Because this is not just bringing in methods, because
25 real computations, the oversight process is a major

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1 activity of the Commission and the committee makes a
2 few comments there that certain things would have been
3 done better if these methods were already in place.

4 MR. JOHNSON: Okay.

5 CHAIRMAN APOSTOLAKIS: We're not talking
6 about bringing an academic approach here to things.
7 When you say green, white, yellow and red, some guys
8 for a few decades have been worried about these
9 things. And they have come up with some ways of
10 handling them. And that's part of this
11 recommendation. That position that you leave last
12 month, the revised oversight process.

13 MEMBER KRESS: I see, a couple of weeks
14 ago.

15 MR. ZIMMERMAN: Okay, I think we're ready
16 to move on. It sounds like the last slide, Slide 10,
17 are again things that we've really already touched on
18 so I would suggest that we start the discussion on the
19 reinvigorating initiative that we have in place, if
20 that's okay with the committee.

21 MR. JOHNSON: Okay, again my name is Jim
22 Johnson. And NRC had its first agency action review
23 meeting this past June on the 26th through the 28th of
24 June this year. Chairman Meserve made some remarks at
25 that meeting, and as a part of his remarks he

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1 identified ten, the ten most significant challenges
2 facing the agency.

3 And among those challenges that he
4 identified, one of them was refocusing and
5 reinvigorating the role of research to the agency
6 demands. Advance reactives was a second one, as well
7 as risk-informed regulations. These were three of the
8 ten challenges that the Chairman identified. Shortly
9 after that, the Office of Research had an off-site
10 retreat and this reinvigorating challenge was further
11 discussed.

12 And it was the consensus of the senior
13 managers of the Office of Research that we would
14 develop a paper that would describe a plan of action
15 to deal with the challenge, this particular challenge
16 that the Chairman identified. And what you see on
17 this very first viewgraph is just three of the topics
18 that would be included in that report.

19 CHAIRMAN APOSTOLAKIS: Did the Chairman
20 tell you why he feels that the Office of Research
21 needs to be refocused and reinvigorated? These re
22 prefixes, did he explain them? Are you unfocused now?

23 MR. JOHNSON: I don't think he provided a
24 great deal of explanation. This is, plus I wasn't at
25 the meeting. This is what I gleaned from

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1 conversations and what I've seen written. And the
2 only recorded message we had was in the minutes of the
3 EDO to the Commission where these challenges were
4 stated.

5 We have inquired about additional meaning
6 to them, but we are just operating now with our
7 understanding of what the Chairman had intended by
8 these challenges.

9 MEMBER WALLIS: You need to have a measure
10 of, a metric for vigor to be invigorated.

11 CHAIRMAN APOSTOLAKIS: And a metric of
12 focus. So you don't have an SRM, right?

13 MEMBER POWERS: It's not a mystery what
14 the concern over the focus is. I mean I think if we,
15 we look at other of Commissioner Meserve's speeches
16 that he has been concerned about the lack of
17 anticipatory research.

18 MR. ZIMMERMAN: I think there's a few
19 things that drive it from the Commission level.
20 There's the issue of the percentage of anticipatory
21 research. There's the alignment issues that we've
22 been working with NRR on in terms of the user need
23 process. I think both offices are working
24 constructively on that, but it's a challenging area to
25 work on the balance between user need and anticipatory

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1 research and some of the, some of the intricacies of
2 that process are being re-evaluated in a significant
3 way right now.

4 And they really revamped the way that
5 process and that interface works. But that issue is
6 one that the Commission became aware of. That the two
7 offices were trying to work through that. That the
8 two offices were trying to work through issues of
9 independence, and what does independence mean as it
10 applies to research. And there's continuing dialogues
11 to try to deal with specific cases so that we can
12 achieve a more harmonious working relationship when
13 some of these issues manifest themselves.

14 Some of these issues, again, came to the
15 Commissions attention because they were prolonged
16 dialogues on these topics. You sprinkle in the fact
17 that the research budget has been going down, so their
18 budgets have as well. So it's not to say that
19 research is alone, but the fact that the budget was
20 going down, there's some demoralization that occurs
21 for individuals that have seen that change and an
22 inability to get work done on things that they feel
23 need to get done.

24 So there was a lot of this all coming
25 together in my mind that this mosaic led to this issue

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1 that we need to add clarity to some of these areas
2 that are confusion about these points of intersection
3 and the interface between how offices will work
4 together. The role of research, whether it's
5 independent, whether it's supportive of NMSS and NRR.
6 The percentage on anticipatory work. And that's my
7 thoughts on where, what's behind this.

8 MR. JOHNSON: And this should definitely
9 be described as a work in progress and it will
10 probably evolve over time. Although we've identified
11 these three topics for the report, they too may change
12 as we get more in to it.

13 MEMBER FORD: What is the time they're
14 needed? When do you have to complete this vision
15 process?

16 CHAIRMAN APOSTOLAKIS: Didn't we have that
17 last year? Didn't we have a vision?

18 MR. JOHNSON: There is a vision statement?

19 CHAIRMAN APOSTOLAKIS: Why are we
20 revisiting it? We didn't like that vision?

21 MR. JOHNSON: Oh, no, no, no. We are not
22 saying we are going to write another vision. We are
23 talking about a report that --

24 CHAIRMAN APOSTOLAKIS: Oh, put everything
25 together.

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1 MR. JOHNSON: -- this is a topic of the
2 report.

3 CHAIRMAN APOSTOLAKIS: Okay, okay.

4 MR. ZIMMERMAN: It ties together. It goes
5 back to the earlier discussion about are we working on
6 the right things. But one of the things that we need
7 to do is just re-baseline ourselves, make sure that
8 we're where we ought to be. If we look at our, at our
9 vision and our mission, does that align with the work
10 that we're doing? Are we working on the right thing
11 so we get back to basics and reground ourselves.

12 So we wanted to, as a group, make sure
13 that we were aligned, that the mission, the vision,
14 the foundation building blocks were all in alignment,
15 that they are right, we don't have any issues, and
16 then we can go from there. That's what we were trying
17 to do at this retreat, is put them in front of us,
18 stare at them, talk about them.

19 If we're not in alignment, which would
20 have surprised us at that level. But if we weren't,
21 sit and talk it out. That's what the retreat was for,
22 is start there and then go from that point.

23 MEMBER FORD: When is this white paper to
24 be finished?

25 MR. JOHNSON: We are aiming to have a

1 draft of it ready by the end of the year, end of the
2 calendar year. Then we'll iterate on it, you know,
3 for a period of time.

4 MR. ZIMMERMAN: As you'll see, as Jim goes
5 through you will see the different pieces of what
6 makes this up. There's a whole smattering of pieces
7 that we're working on to accomplish this.

8 MR. JOHNSON: Okay. And although we do
9 have this vision and mission statement, in fact this
10 is SECY 99281. But we have received some, some
11 comments on this document suggesting that it ought to
12 be revisited and some corrections made. The other
13 topic would be to provide some historical perspective.
14 Again, this is just a document that would talk about
15 the strengths and the accomplishments of the Office of
16 Research.

17 And then the final point would be the
18 reinvigoration process. And the remaining viewgraphs
19 that we have here are to address this reinvigoration
20 process. And we would start with the communication.
21 We believe that communication is an important part of
22 any reinvigoration process. And it's clear to know,
23 when we talk about communication it's such a broad and
24 general area, and so we have to be fairly specific and
25 know what problems we are trying to address.

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1 We have to know who our stakeholders are.
2 And we generally characterize them as both internal
3 and external.

4 CHAIRMAN APOSTOLAKIS: This is a subject
5 that keeps coming up, as you know. What came to mind
6 now is that, you know, for years people out there know
7 that if they pick up a National Laboratory Report, all
8 the references are NUREG. You pick up an industry
9 study, you don't see any NUREGs. Well, maybe now
10 things are a little different. Maybe you can ask
11 these people why that is so? But you will get very
12 useful -- is it because they are not aware of the work
13 that is being done?

14 Is it because they don't like it or they
15 disapprove? I don't know. But several of us have
16 complained in different forums in the last, whatever,
17 20 years. You know, the National Lab guys always cite
18 NUREG reports, the industry always cites its own
19 reports. And there doesn't seem to be --

20 MR. JOHNSON: We are aware of that and at
21 the NSRC Conference this year we had a special session
22 on communications, where we invited external
23 stakeholders in and to speak to those subjects. And
24 basically the bottom line is, is that we ought to, you
25 know, involve our external stakeholders early on in

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1 the process. That was the general consensus of those
2 on the panel, be involved in the actual planning.

3 CHAIRMAN APOSTOLAKIS: Do you still have
4 restrictions sending people to national conferences,
5 for example? And presenting papers?

6 MR. JOHNSON: There's no restriction that
7 I'm aware of.

8 MR. MAYFIELD: There's the obvious, you
9 can only send so many people so many times.

10 CHAIRMAN APOSTOLAKIS: Oh, I understand
11 that.

12 MR. MAYFIELD: Yeah, but beyond that, and
13 in fact in the statements of work that we send to the
14 laboratories there is a piece that goes in there that
15 says we encourage publication and peer review
16 journals. So there is encouragement to both the DOE
17 Laboratories as well as our other commercial companies
18 to publish. Publish in peer review journals, to
19 attend conferences. We do hold the, sort of reserve
20 the right to say which ones they're going to go to and
21 how much we spend on it, but we do encourage it very
22 actively. And encourage our staff to participate
23 also.

24 MR. ZIMMERMAN: This initiative is a real
25 back to basics, Management 101. It's the things we

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1 were talking about before, about being able to explain
2 in plain English the things that we do internally and
3 externally. But it's also how do we communicate
4 within our own organization? How do we do our own
5 staff meetings?

6 Do we get the word out and give time for
7 people to digest it and ask questions if they don't
8 understand it? Or is it a one-way dialogue rather
9 than a two-way dialogue. The whole art of
10 communication and asking for feedback and wanting
11 feedback so it's viewed that you want the feedback,
12 not that you're asking but you don't want it.

13 You know, it's building that trust through
14 the organization. Reinvigoration is going to take all
15 of this stuff. It's having meetings with set agendas
16 that are understood what is success for the meeting.
17 Where the meetings start on time and end on time. And
18 it's a whole, again it's a mosaic of a lot of
19 different things because when we don't do those things
20 and it become habitual, you start to lose the staff.

21 And we're trying to move in the opposite
22 direction. So it's more attention to some of these
23 areas is what we're --

24 MEMBER POWERS: I think it always bears
25 repeating. We have a superb staff in Research. I

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1 mean relative to most government agencies, you've got
2 the cream of the crop here.

3 CHAIRMAN APOSTOLAKIS: I suspect a part of
4 the reason communication is not very good at its
5 various guises, is the lack of time on the part of
6 people. People just don't have time to read, to go,
7 to listen to other people. I mean if you're under
8 tremendous pressure to do something by next Tuesday,
9 the last thing you're going to think about is, you
10 know, going to a conference or talking to somebody or
11 listening to somebody else.

12 And I think that's something that you
13 can't do much about.

14 MR. ZIMMERMAN: You've got to find that
15 happy medium. The staff, when surveyed, there was a
16 survey done by an SCS candidate, the last SCS
17 candidate development group. You might have seen that
18 report. It was a very good report about
19 communications. And they surveyed from different
20 offices. And one of the things that they said about,
21 about our office, is they're not getting enough
22 information from the management team.

23 They can get it from reading inside NRC,
24 but they are not getting enough through our own staff
25 meetings. Obviously that's clearly not what we want

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1 to have. So, again, you line all these things up
2 under reinvigorating, they all have a little piece.
3 They're all little stressors in there. And we need to
4 work on them collectively. You've got to get your
5 arms around them and then you've got to wrestle them
6 to the ground.

7 MR. JOHNSON: And I think the bottom line
8 is you need strategies to deal both with the internal
9 and the external stakeholders. And that was part of
10 the exercise with the Rogers Committee. We had a lot
11 of external stakeholders there, communication was a
12 big issue and at the NSRC we invited external
13 stakeholders there to try and get suggestions and to
14 develop strategies to deal with them as well.

15 MR. ROSEN: That's part of the answer to
16 George's question. You know, George, you asked why
17 does the industry never reference NRC work and --

18 CHAIRMAN APOSTOLAKIS: And vice versa.

19 MR. ROSEN: -- yeah, vice versa. Well, I
20 think it all goes back to this question of getting
21 external stakeholder comment and integration into your
22 planning process. Clearly there are going to be
23 things that the industry wants to do that the NRC is
24 not going to have an interest in, and that's fine.

25 And clearly there are going to be things

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1 the NRC wants to do, in the nature of confirmatory
2 work, that the industry would rather you didn't do
3 probably. And that's fine too. But there's going to
4 be a big middle ground, a vast area of congruence
5 which, if identified, will lead to the kind of
6 referencing that you want.

7 Because the work was planned jointly and
8 administered and maybe even funded jointly under the
9 guidelines that I've seen that I think make sense.
10 And in that sense, going back and reinvigorating and
11 refocusing that process to make it more of a joint
12 effort with industry. Nobody is as smart as all of
13 us, and to have that really work would make a lot more
14 sense.

15 MR. JOHNSON: Well, we are participating
16 in a CSNI working group, which has been set up to try
17 and identify the impediments of regulators working
18 with the industry. And both the NRC and EPRI will
19 have representatives on there. So that's another
20 attempt to try and, you know, bring them to bare on
21 this.

22 MR. ROSEN: And maybe another comment on,
23 as long as I've interrupted the flow here.
24 Internally, Roy, when you're talking about this need
25 to listen and talk to your own staff and management,

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1 will lead to a very positive result. One, that is
2 that when we do, when you do decide, using your
3 priority scheme, to have certain things not be funded
4 anymore, this add shed process. When you get to shed,
5 the people who's work is being shed will be able to
6 trace the decision back to the original vision and
7 priority structure, rather than just some ad hominem
8 attack on them.

9 MR. ZIMMERMAN: Right, it's not arbitrary
10 in the way the decisions are made.

11 MR. ROSEN: It's not arbitrary, it's not
12 about you, it's not about your skill level. It's all
13 about the mission of the organization and the agency.

14 MR. ZIMMERMAN: Right.

15 MEMBER POWERS: You have your work shed,
16 you blame it on somebody.

17 MR. ROSEN: I don't think so. I think if
18 you, if you understand the reasons for it and are
19 integrated and have a common, the kind of trust that
20 I think Roy is trying to build, and, between the
21 management and the staff, that you'll find something
22 else to do that's more valuable and you'll come back
23 the next day invigorated, to work on something that's
24 more mainstream.

25 MR. NEWBERRY: Just to chime in there.

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1 One of the activities that came out of our retreat
2 relating to this is to relook at our prioritization
3 process. Because there is some lessons learned that
4 we have coming out of last year's budget cycle, and
5 we're going to --

6 CHAIRMAN APOSTOLAKIS: What process is
7 that?

8 MR. NEWBERRY: The prioritization process
9 that we use to rank our work. It is --

10 MR. ZIMMERMAN: It's against the four
11 performance goals.

12 MR. NEWBERRY: It's against the four
13 performance goals. Very much so, very much so. And
14 there, there a number of views on how to improve it.
15 And we're going to try to take those views and --

16 CHAIRMAN APOSTOLAKIS: -- what you're
17 ignoring.

18 MR. NEWBERRY: Formal decision making.

19 MR. ZIMMERMAN: That's right.

20 MEMBER FORD: Just for my information,
21 what are these four performance goals? What are they?

22 MR. JOHNSON: Maintain safety, public
23 confidence, effectiveness and efficiency --

24 MEMBER FORD: Oh, this is the NRC
25 performance goals? It's not the research performance

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1 goals?

2 MR. ZIMMERMAN: Agency performance goals.
3 That applies to all 12 offices. Depending on what
4 office, you may find most of your work in one area
5 like another area. For program offices it tends to be
6 split pretty well across the four performance goals.

7 MEMBER FORD: But there's not a separate
8 subset of goals which are quite specific to research?

9 MR. ZIMMERMAN: No. There's vision that
10 talks about the independence and maintaining core
11 competencies and --

12 MEMBER FORD: Yeah, but those aren't,
13 that's not a specific goal, is it? It's a broad goal,
14 but if you asked an individual researcher to measure
15 his performance against that, could he do it?

16 MR. ZIMMERMAN: Well, what we're trying to
17 do is get our staff to be able to explain their work
18 with regard to the four performance goals.

19 MEMBER FORD: Okay.

20 MR. ZIMMERMAN: And it would, and we're
21 all learning, all the offices are learning. It's not
22 like one office has found the answer, we're all
23 getting a little better at it. But the answer isn't
24 just say that, well, the work I did helped maintained
25 safety or it improved public confidence. You take it,

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1 it's harder to do that. What was it that maintained
2 safety? What was it that improved public confidence?

3 And to the extent that you can do it in a
4 numerical way that is irrefutable, that's what you're
5 trying to do.

6 MEMBER FORD: You're going back to metrics
7 again, aren't you?

8 MEMBER WALLIS: You are.

9 MEMBER FORD: It seems to me though that
10 the decisions are different. I mean as an agency,
11 when we make decisions that affect the licensees, then
12 these four goals are of course very important. You
13 want to maintain safety, you want the public to
14 understand your decisions, the licensees to understand
15 your decisions and so on.

16 CHAIRMAN APOSTOLAKIS: When you make
17 decisions regarding, you know, research projects, then
18 that's a different decision now.

19 I don't see how maintaining safety is
20 important to this. So you probably need another set
21 of goals that will of course be consistent with the
22 agency-wide goals, but for example you might want to
23 say provide better information for, or not better,
24 vital information for better decision making.

25 Then the question comes up, what's better

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1 decision making? Well, maybe reducing the
2 uncertainties or building a model where none exists.
3 Then you become a little more specific regarding what
4 the office is doing.

5 MEMBER FORD: One of the things that
6 puzzles me --

7 CHAIRMAN APOSTOLAKIS: Maintaining safety
8 is irrelevant.

9 MEMBER FORD: On this very issue, one of
10 the things that puzzled me, looking at this team
11 generated action plan, for instance. To me, I could
12 see some very clear technical objectives. Though, at
13 the end of the day it wasn't at all clear to me how
14 those results were going to be transitioned to the
15 staff. And when you talk to the staff, what are you
16 expecting from research, there is a kind of pained
17 silence. So there's a --

18 MR. ZIMMERMAN: I think that's the process
19 that we need to get to so you see --

20 MEMBER FORD: But that's the one vital
21 link that you're missing.

22 MR. ZIMMERMAN: Right.

23 MEMBER FORD: Because then your value is
24 clearly seen by the staff.

25 MR. ZIMMERMAN: Right. I got a little

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1 lost when you were talking about how it doesn't apply
2 to maintain safety. What I think I got from what you
3 said, because this is a challenging topic.

4 CHAIRMAN APOSTOLAKIS: It certainly is.

5 MR. ZIMMERMAN: This is not easy. Under
6 the, under the different four goals there are
7 strategies of how you get to there. What do you do?
8 And risk informing is an example of how you, a
9 strategy to work to maintain safety.

10 CHAIRMAN APOSTOLAKIS: Right.

11 MR. ZIMMERMAN: Also it helps with
12 decision making. What you're describing in terms of
13 formal decision making fits in under effectiveness and
14 efficiency to be able to feed out to help make those
15 decisions. If you make inefficient decisions --

16 CHAIRMAN APOSTOLAKIS: You are absolutely
17 right. But I mean one of the first things you learn
18 there, if you follow that route, is that different
19 decision problems require different methods, different
20 objective have different objectives and so on. So
21 when we talk about the top goals of the agency, of
22 course you want to maintain safety. I'm not saying
23 you don't.

24 But I don't see how a goal like that would
25 affect your decision on funding a particular research

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1 activity. I mean, you know, everything we do is
2 relevant to safety.

3 MEMBER WALLIS: It's very important that
4 everybody else is pursuing these goals, you've got to
5 fit in with it. You've got to --

6 CHAIRMAN APOSTOLAKIS: You're fitting into
7 it, but it's not, it's so high level as to be useless.
8 That's what I'm saying.

9 MR. ZIMMERMAN: I'm not sure if this is
10 helping or hurting. I'll give you sort of audience
11 example. The vessel-head cracking was not something
12 that was in the budget, it wasn't planned for that.
13 It came up, it's reactive work, something had to give.
14 If we're going to pick up the work that this office
15 did, something had to be shed.

16 It didn't take very much, going through an
17 add-shed, to say that that activity directly relates
18 to safety. That was one of the higher priority work
19 items that we did in support of NRR to take a look at
20 the work that was being done to support the issue
21 that's in the bulletin. So, if we communicate amongst
22 ourselves we clearly brought out the maintain safety
23 aspect of the work that Mike and others did in that
24 area.

25 And that was a basis for people getting

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1 pulled off of other things to go to work on that.

2 MEMBER FORD: That's a beautiful example.
3 That's a beautiful example, and it's a pleasure to see
4 that interaction between Jack Strosswriter(phonetic)
5 and you guys. And it's very positive. Now why aren't
6 there ten or 20, I mean you're giving one, but can you
7 cite ten, 20 such examples this year? I mean that's
8 the sort of volume for that budget you've got.

9 And that's the sort of volume that you're
10 really looking for.

11 MR. ZIMMERMAN: We're going, we're going
12 around to that, I think, to that first chart of recent
13 accomplishments. You know, the recent
14 accomplishments, another one that is significant had
15 to do with the high burn up with regard to cask
16 loadings. And moving away from the overly
17 conservative assumptions associated with clean fuel
18 and spent fuel. And when that work was done, that
19 provided the basis to take casks off the streets, off
20 the highways that have the potential for providing
21 exposure to individual that are in proximity to
22 highway accidents, there are fewer casks.

23 There's fewer chances of a problem. And
24 there's quantifiable savings for the industry, for the
25 taxpayer, as a result of that activity. That work came

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1 out of this office. And it's probably over a billion
2 dollars of savings as a result of that work. So when
3 you reinvigorate, when, when, if what I say is true
4 and the facts support it to an objective audience,
5 then that should put spring in the step or invigorate
6 if our own staff should feel proud that they did that.

7 And we ought to be proud in sharing it
8 internally and externally.

9 CHAIRMAN APOSTOLAKIS: In this case, Roy,
10 wouldn't you say that you met a goal of reducing the
11 risk for the health and safety of the public? That's
12 what you just said.

13 MR. ZIMMERMAN: On that particular area?

14 CHAIRMAN APOSTOLAKIS: Yeah, on that
15 particular area.

16 MR. ZIMMERMAN: We reduced exposure to
17 workers, individuals by that.

18 CHAIRMAN APOSTOLAKIS: Okay.

19 MR. ZIMMERMAN: Did it maintain safety?
20 The work that we did that did the review verified that
21 there was still sufficient margin. We maintained
22 safety by ensuring that. It had a bigger vector on
23 reducing the necessary regulatory burden. Now am I
24 going to hire enrichments to be loaded, it allotted
25 more fuel per cask, it allotted variations and

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1 flexibility and cask design. And again, and it got
2 casks off the road.

3 So when you look at how it feeds the four
4 performance goals, the vector on maintaining safety in
5 my mind is smaller than the vector on reducing
6 unnecessary regulatory burden. I improved realism.
7 I'm not sure if this is helping or hurting.

8 CHAIRMAN APOSTOLAKIS: No, I think it's
9 helping. It is very helpful, yeah.

10 VICE CHAIRMAN BONACA: I would like to
11 just, again, sorry about that if I'm focused on the
12 research report. But I took the task of putting it
13 together.

14 (Laughter.)

15 VICE CHAIRMAN BONACA: You know we
16 received here a recommendation counter to what we
17 discussed with Mr. Vidani (phonetic) a couple of months
18 ago, that the report would be focused on advanced
19 reactor reviews or new challenges and materials and
20 anticipatory research. And we haven't, we need to
21 touch on any one of these subjects.

22 CHAIRMAN APOSTOLAKIS: Where is this from?

23 VICE CHAIRMAN BONACA: It is the last page
24 of the presentation. So I would like to just make
25 sure that before the next 50 minutes are over that we

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1 --

2 MR. JOHNSON: Okay, we'll take just a few
3 minutes to get through the remaining charts here.
4 Let's flip to the next one. It just says that we want
5 to enhance our environment for innovation. And I
6 think in order to do that we've got to be concerned
7 about the scope of our work. And we ought to, we want
8 to emphasize anticipatory work and we want
9 intellectual and technical leaders.

10 We need strategies for, to make sure that
11 those kind of things are in place. The
12 infrastructure, you've heard a great deal about that
13 in the past. Chairman Meserve, at his keynote address
14 at the NSRC, spent a great deal talking about the
15 infrastructure and its importance. The next viewgraph

16 --

17 MR. ROSEN: You skipped over innovation
18 very carefully, very quickly, and that's a whole
19 week's worth of discussion, of course.

20 MR. JOHNSON: Right.

21 MR. ROSEN: And clearly some of the things
22 you talked about earlier, Roy, which is the building
23 of trust allows people to fail. It gives them a
24 chance to innovate, but not all innovations are
25 successful. If you require 100 percent success, then

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1 you're not going to get much innovation.

2 CHAIRMAN APOSTOLAKIS: Can you really do
3 that when your budget keeps going down?

4 MR. ROSEN: Well, I think you can but I --

5 CHAIRMAN APOSTOLAKIS: Can you afford to
6 have people try crazy ideas and fail?

7 MR. ROSEN: Well, crazy --

8 CHAIRMAN APOSTOLAKIS: You can't.

9 MR. ROSEN: -- crazy are not so good, but
10 I think reasoned risk in an environment where the
11 management is will to accept the outcome along with
12 the proponent, you know, this is a good, an idea that
13 may or may not work. But if it doesn't we haven't
14 lost a whole lot, and if it does there's a tremendous
15 upside. And management buys in on the front end in a
16 trusting environment with that, you may get some
17 innovation.

18 But if you're requiring, you know, if this
19 doesn't work we know who to hang kind of approach,
20 well then for sure everybody pulls back into their
21 shell and you won't get any innovation.

22 MEMBER FORD: Could I ask a question?
23 This is so fascinating, I'm sorry to be interrupting.
24 I'm sorry. Have you thought about talking to people
25 who's business it is to maintain and create an

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1 innovative R and D environment? Dana pointed out
2 that, you know, he knows that some have failed.
3 Others have won.

4 MR. JOHNSON: Right.

5 MEMBER FORD: And why not go to them? I
6 can think of one organization you go to, hence my old
7 one, but they know how to do it. So why don't we go
8 and ask them how to do it?

9 MR. JOHNSON: Well, we --

10 CHAIRMAN APOSTOLAKIS: See, that's related
11 to a comment that I wanted to make. I think this
12 discussion is taking off on a scungent that is
13 unrealistic. We're going to start again talking about
14 very high level desiderata or we need intellectual
15 leaders. The question is if you put intellectual
16 leaders up there, immediately you should ask, can that
17 be accomplished within the environment this agency is
18 working? And I think not. I really think you can't
19 have innovation and you can't have -- well, no.
20 Intellectual technical, you have your technical
21 leaders here, but you can't grow them.

22 MR. ROSEN: Why is that not a problem,
23 George? Why are you willing to accept that?

24 CHAIRMAN APOSTOLAKIS: They have so much
25 work to do that is, needs to be done. They don't have

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1 all the resources. They keep telling us they
2 prioritize, and at the same time we talk about
3 innovation and the right to fail? How do we do that?

4 MEMBER FORD: Do you think that is
5 unusual? You think that this situation is unusual?

6 MEMBER WALLIS: George, you have so much
7 that you have to do and you can still be an
8 intellectual leader, I hope.

9 (Laughter.)

10 MEMBER POWERS: No, he believes in
11 decision theory. There is no hope for him.

12 (Laughter.)

13 CHAIRMAN APOSTOLAKIS: They asked Dr.
14 Watson, Nobel Prize winner in DNA, how does one do
15 good work? And he said one does good work when one is
16 underemployed and has time to try crazy ideas and fail
17 and start again. Then the Reporter came back and
18 said, but now you are directing this laboratory in New
19 Jersey, I think. He said, yeah. I'm not doing any
20 good work anymore.

21 (Laughter.)

22 CHAIRMAN APOSTOLAKIS: And I think there
23 is a hell of a lot of truth in that. I, what I'm
24 saying is we've been doing this now for four years.
25 The research report and in other forums and so on.

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1 We're talking about innovation. It's like this fun
2 thing that major corporations advertise that they want
3 people with initiative and then they kill them away if
4 they have any.

5 Can we really achieve these things within
6 the realities of the agency. I mean we can all talk
7 about intellectual leadership and innovation, and I
8 really don't think we can have much innovation now.
9 You guys don't give any plans anymore, do you? You
10 guys are not all, what was the mechanism, what is the
11 mechanism for getting a good idea that is innovative
12 with a high probability of failure? What is the
13 mechanism that will come to Scott and Scott will
14 evaluate it and say, let's fund it. Right now, what
15 is that mechanism?

16 MR. JOHNSON: Well, we've asked all of our
17 National Labs. We'll ask this committee.

18 CHAIRMAN APOSTOLAKIS: To do what?

19 MR. JOHNSON: We'll ask our staff for
20 ideas for --

21 CHAIRMAN APOSTOLAKIS: For innovative
22 ideas?

23 MEMBER POWERS: I think this is an easy
24 answer to him.

25 MR. JOHNSON: Yes.

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1 MEMBER POWERS: There is innovation in
2 this agency and the research program and I can think
3 of three areas that come immediately to mind. I think
4 of, to work Joey Muscara proposed as part of the steam
5 generator program to look at stress corrosion cracking
6 mechanisms. I can think of the stuff that they're
7 doing in developing fire risk assessment, where
8 they're literally developing the technologies for
9 doing fire risk assessments.

10 CHAIRMAN APOSTOLAKIS: I don't think
11 that's innovative.

12 MEMBER POWERS: I think the stuff that
13 they're doing on, with CFD that we just mentioned
14 before is an innovation. Perhaps not an innovation in
15 Graham's world, but in the regulatory world that's a
16 big innovation.

17 CHAIRMAN APOSTOLAKIS: Why is it
18 innovative, Nathan? I mean Dana. We know we need a
19 methodology to assess risk and they're doing it. Why
20 is that innovative.

21 MEMBER POWERS: Mr. Apostolakis, I assert
22 my right to have the floor here.

23 CHAIRMAN APOSTOLAKIS: You do have the
24 floor.

25 MEMBER POWERS: The, we know that

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1 innovation is a local phenomena, it's not a global
2 phenomena. And just because they don't win Nobel
3 Prizes here, in fact I think if somebody won the Nobel
4 Prize they would probably congratulate him and then
5 fire him. Because he was obviously not working on the
6 main mission.

7 (Laughter.)

8 CHAIRMAN APOSTOLAKIS: I hope --

9 MEMBER POWERS: But they are doing
10 innovation and I think there's no question about it.

11 MEMBER WALLIS: I think you have
12 innovation on all kinds of levels.

13 MEMBER POWERS: Sure.

14 MEMBER WALLIS: When reviewing, say, a
15 thermal hydraulic code, it's being done a certain way
16 by a licensee or a vendor and they've put together
17 this thing. And you look at it and say, gee whiz, I'm
18 not sure I believe that. I can think of a different
19 way to balance momentum and I can compare my result
20 with theirs. That is innovative. They are doing
21 something which is new and you're bringing this
22 insight to bear on something, rather than just
23 accepting somebody else's deal.

24 CHAIRMAN APOSTOLAKIS: I think you should
25 put in your previous slide under external

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1 communication, ACRS. We have a big problem with
2 communication.

3 (Laughter.)

4 MR. ROSEN: I think the problem seems
5 rather limited to you, George.

6 (Laughter.)

7 CHAIRMAN APOSTOLAKIS: No, when somebody
8 tells me I need to do this, and then I'm thinking
9 about it how to do it in a good way, for me that's not
10 innovation. I'm just doing a good job and what I was
11 asked to do. That's not innovation.

12 MR. ROSEN: Well, a lot of it --

13 CHAIRMAN APOSTOLAKIS: Well, but anyway I
14 don't know, That doesn't help Dr. Bonaca, so let's not
15 spend that much time on this.

16 VICE CHAIRMAN BONACA: Also, you members
17 who will contribute in a prolific way to this --

18 MR. JOHNSON: Let's move to the --

19 CHAIRMAN APOSTOLAKIS: I'm criticizing the
20 system, by the way, not the people. I said, what are
21 the conditions?

22 MR. JOHNSON: Okay, if we move to the next
23 slide, where again we're still on refocus and re-
24 evaluation process. We believe that it is important
25 to emphasize in-house work and we've put on the table

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1 the possibility of re-baselining NUREG-1150 that does
2 not necessarily mean that we would do five plants.

3 But it would be a mechanism to involve a
4 lot of our staff as opposed to contracting the bulk of
5 the work out. We also need to increase cooperative
6 work, as we've mentioned, mentioned that earlier.

7 MEMBER POWERS: When you speak of
8 cooperative work, I see the words and what immediately
9 springs to mind is what I thought was an outstanding
10 job that you've done in organizing this PTS activity
11 where you brought three of the branches together with
12 as diverse a technical focus of any three that I think
13 you could have brought together.

14 Thermal hydraulics, the blacksmiths, and
15 the risk guessers, and brought them together to work
16 on a focus task. And that is one of the areas that I
17 would call creative management in, and I think that's
18 one that you ought to be really proud of.

19 MR. ZIMMERMAN: We appreciated the write
20 up and the report about that too.

21 MEMBER POWERS: Yeah, it's, I mean that
22 really was, I think that's the wave of the future in
23 research. Is getting these multiple disciplinary
24 activities to work on a focused attack on a problem
25 that you can resolve when you bring those three

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1 disciplines, well, two disciplines and the blacksmiths
2 together.

3 (Laughter.)

4 CHAIRMAN APOSTOLAKIS: What do you mean by
5 re-baseline NUREG-1150, Jim?

6 MR. JOHNSON: Updating it with the most
7 recent information. We've spent millions of dollars
8 on severe accident research and it's not reflected in
9 NUREG-1150.

10 CHAIRMAN APOSTOLAKIS: And how would that
11 help the agency in its mission?

12 MR. JOHNSON: Well, it would update the
13 base of information that is currently being used.
14 NUREG-1150 is referenced in so many different places
15 in various regulatory applications. So it would
16 provide more up-to-date data. And in addition to
17 that, it would involve a large number of our research
18 staff who may not have had hands-on experience in
19 doing PRA-type analysis.

20 MR. ZIMMERMAN: No decision has been made
21 on this. It's, again, from a creativity standpoint,
22 it's an item that was brought up that looks like it
23 has merit for consideration. And that's why it's on
24 the slide.

25 CHAIRMAN APOSTOLAKIS: I'm just wondering,

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1 I mean we have now the IPs and the IPEEEs. Is stream
2 relying on NUREG-1150 as much as in the old days? Or
3 is there something innovative that we can do with the
4 IPs and the IPEEEs. And maybe with NUREG-1150 and come
5 up with something else. I don't know.

6 MEMBER KRESS: My view that George is, in
7 NUREG-1150 is the one place where they did a
8 comprehensive uncertainty analysis. It includes both
9 epistemic and, you know, aleatoric. When you go now
10 and do a PRA and factor uncertainty into that, you
11 don't get the full thing that you got out of NUREG-
12 1150.

13 And it gives you a meter from which to
14 gauge the uncertainty that you calculate from the PRA
15 and I think it will be valuable in your risk informed
16 thinking when you incorporate uncertainties into that.
17 Because you need this to, as a meter to gauge what the
18 full uncertainty might be, given what you calculated
19 by the PRA. Because they're not the same thing.

20 And I think that's the place where it
21 might be very easy.

22 MEMBER POWERS: I think they have just
23 about mined the IPEs for what they're worth. Because
24 remember the IPEs have a specific, very specific sort
25 of objectives that really are quite different than the

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1 role that risk is being played in now. And you can't
2 interrogate that the way you can 1150. I mean I think
3 the insides document, which is one, by the way, one of
4 my favorite documents. The IP insides document I
5 think is, was a real tour de force there, but it's
6 utility relies in believing in the ensemble
7 approximation for reactor uncertainties.

8 That is I can look at a whole collection
9 of plants and from that understanding something about
10 the uncertainties. And that's just never been
11 demonstrated.

12 MR. JOHNSON: Now see these last three
13 slides is just a continuation of this same theme.
14 We've already talking about the mission and vision
15 statement. There are two things that concern us with,
16 with the current statement. That
17 s the use of the word independence, and the vision
18 statement is rather long. The next viewgraph talks
19 about staff morale and identifies some potential
20 things that can be done to improve staff morale.

21 The last slide addresses RES performance,
22 and talks about things like accountability and
23 timeliness and making sure that you have quality
24 products. And this is not intended to be a
25 comprehensive list of all the things that we need to

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1 do to reinvigorate, but this is just a starting point
2 for us to consider and to kick around a little bit.
3 Thank you, that's all I have.

4 CHAIRMAN APOSTOLAKIS: I think this white
5 paper will be very useful, especially you're doing
6 every little thing you mentioned, or big thing, you do
7 what you have on Page 7. You give a specific way or
8 example of how to achieve that. So you enhance Branch
9 Chiefs involvement in management issues. For example,
10 the budget. Now that tells me about your way of doing
11 it. The regional wire was a little cold earlier about
12 other stuff like enhanceability for information. I
13 don't know what that means.

14 If you give me examples of how to do it,
15 then more power to you.

16 MR. JOHNSON: Yeah, we wouldn't put
17 examples in the paper unless there is a mechanism or
18 a strategy for doing it.

19 CHAIRMAN APOSTOLAKIS: Okay, that would be
20 great.

21 MR. JOHNSON: We can't ultimately do that
22 if it's actually, it's going to succeed. You've got
23 to bring it to light, and the only way you're going to
24 do that was to put examples.

25 MR. ZIMMERMAN: Okay, I think we're set to

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1 move on to the advanced reactor part of the
2 discussion. I apologize that I need to leave. I very
3 much enjoyed the discussion, thank you very much.

4 CHAIRMAN APOSTOLAKIS: Is Mike going to
5 speak after you?

6 MR. MAYFIELD: I think what I've got to
7 say can be done in about 30 seconds, so maybe as we
8 come back I can go through this.

9 CHAIRMAN APOSTOLAKIS: Okay.

10 MR. KING: How much time did you want to
11 take?

12 CHAIRMAN APOSTOLAKIS: Well, we have
13 another meeting, right? We have other, do you want to
14 take a few hours, around 4:15?

15 MR. KING: Yeah, where are we on this
16 agenda?

17 CHAIRMAN APOSTOLAKIS: 4:15. We have to be
18 done by 4:15.

19 MR. KING: Okay, what I'm going to do is
20 provide an overview of everything that's going on in
21 research and advance reactors. And I've got to point
22 out at the beginning that this is work in progress.
23 Some of it is yet to be determined because some of it
24 hasn't really shown up at our doorstep yet. We're
25 projecting it will. A lot of it is still subject to

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1 budget discussions that are underway right now, both
2 priorities and the funding levels.

3 And we can talk a little bit about that.
4 We really expected, expect the details, I think, of
5 the kinds of things you wanted to deal with in your
6 report. Technical issues on the pebble bed, new
7 licensing frame work, you know, in concept what could
8 that look like and so forth.

9 Research plan for HTGR research. All of
10 that stuff, in terms of having detailed discussions
11 with you, is we won't be ready probably until early
12 next year. And we'll talk about the schedules. So if
13 you're looking today for some meat to dig into and
14 some positions to wrestle with, they're not ready yet.

15 VICE CHAIRMAN BONACA: As I mentioned
16 yesterday, it's difficult for us to write a report on
17 your research program when the program still is not
18 defined. I mean when we discussed this with Schrock
19 at the time he envisioned that we would have that
20 progress made now. That you would have already some
21 definition for example of surrogate, safety goals that
22 can be used for plants other than, you know, water
23 reactors. And evidently we have no data, so anyway
24 let's see what you have and then we'll make a
25 decision.

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1 See, that's why you have to make a
2 decision on what is important enough to contain they
3 year, given the constraints and the fact that we have
4 a deadline of March 29th, I believe, for the report.

5 MR. KING: Okay, I'm not sure what Schrock
6 had in mind when he talked to you earlier, but all our
7 schedules have always been to really start detailed
8 technical discussions with you probably in January.
9 Both on pebblebed, on research plan for HTGRs and
10 other things that might follow that. So let me just
11 quickly, you know, the RES role and responsibility in
12 the advance reactor I think is pretty simple.

13 I think research really is charged with
14 preparing the agencies and the technical
15 infrastructure to deal with these future activities
16 coming down the road in the case of advanced reactors
17 to facilitate licensing reviews of future plants. How
18 we do that is one, we've got the lead for
19 preapplication reviews of non-LWRs and innovative LWR
20 designs, like the IRIS design that's coming down the
21 road.

22 We've got the lead to develop or adapt
23 analytical tools that we think we might need if we
24 want to do some independent safety assessment on these
25 future designs. And to develop the technical basis

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1 for whatever guidance or confirmatory data we think we
2 might want to have available just to either check what
3 applicants are telling us or to bring ourselves up to
4 speed so the staff can do a better review and deal
5 with some of these issues ourselves. We can ask
6 better questions, we can be more knowledgeable.

7 What are we involved in? Today we're
8 involved in two things that are ongoing. The
9 pebblebed preapplication review, which started back at
10 the end of April. We've been having monthly meetings
11 with Exelon. And we're in support of NRR on the AP-
12 1000 preapplication review.

13 We're looking at the scaling issues
14 associated with scaling up from 600 to 1,000 megawatts
15 electric. What we expect shortly is another request
16 for preapplication review on another HTGR, the general
17 atomic design called the gas turbine modular helium
18 reactor.

19 We have a kick off meeting scheduled for
20 December 3rd, where they're going to come in and tell
21 us what it is they want and when they want it. We
22 have, expect a similar request to get started on the
23 IRIS preapplication review, that's an innovative LWR.
24 Our understanding is the initial focus of that will be
25 with what thermal hydraulic testing program is needed

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1 to actually confirm the design.

2 We expect to begin shortly, as soon as the
3 budget stuff is settled, initiate development of some
4 thermal hydraulic and severe accident code
5 capabilities to deal with HTGRs, to deal with AP-1000
6 and IRIS. And we'll talk a little bit more about that
7 later.

8 We're looking at what confirmatory or
9 exploratory research, experimental-type programs we
10 want to, we want to conduct. Whether it's on high-
11 temperature materials, graphite or some, you know, AP-
12 1000 thermal hydraulic confirmatory tests. A full
13 range of things that we think would be useful to do,
14 the problem is do we have the resources to do it?

15 And we're also thinking about the
16 technical basis for future plant licensing framework.
17 And we'll talk about that some more. Those are what
18 I call near future, and a lot of that would get
19 underway this fiscal year. Maybe some of it would be
20 next fiscal year, but a lot of it this fiscal year.
21 Longer term, maybe several years down the road,
22 there's DOE's Generation IV program. Going on right
23 now we're pretty much just observers in that, but
24 there are, at some point down the road, they would
25 start some interactions with us on licensing issues.

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1 DOE had a program on, it used to be called
2 accelerated transmutation of waste. I think the
3 accelerator part has sort of gone down the drain, but
4 they still have a transmutational waste program. And
5 it's my understanding they're thinking now of liquid
6 metal reactors. They're program planning calls for
7 coming into NRC on licensing issues with those in the
8 next few years.

9 And there may be other things. Who knows
10 what else will come down the road. So there's a whole
11 laundry list of stuff that --

12 VICE CHAIRMAN BONACA: I have a question
13 on that. And the question is you said essentially
14 they are waiting until these concepts may be more
15 advanced and there is some kind of licensing
16 interaction taking place for you to start involvement.

17 MR. KING: You're talking about Generation
18 IV now?

19 VICE CHAIRMAN BONACA: Yeah.

20 MR. KING: Yeah.

21 VICE CHAIRMAN BONACA: And you know one of
22 the, I think one of the main impediments to your
23 ability to develop a new, let me call it a new
24 regulatory framework for, say the pebblebed reactor,
25 is that the pebblebed is referred to us, there's no

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1 time to develop a new frame work.

2 MR. KING: Right.

3 VICE CHAIRMAN BONACA: Okay, if you wait
4 for Generation IV reactors until they have a concept
5 on the table, you are never going to be able to have
6 a new regulatory framework from scratch. So wouldn't
7 it be important, if you really wanted to develop that,
8 to start now?

9 MR. KING: Yes, I agree with you. And
10 don't misread my comments. I wasn't suggesting we wait
11 for Generation IV. I'm just suggesting --

12 VICE CHAIRMAN BONACA: No, but you mention
13 that, you know, this is, they'll come maybe in three
14 or four years and then we'll be talking about a new
15 licensing environment, but that will be too late.

16 MR. KING: I agree. The ideal thing is to
17 get started now so that when these designs are ready
18 to come in, the new framework is in place. I agree
19 with you.

20 VICE CHAIRMAN BONACA: Otherwise they'll
21 go to propose it to you, what they want to do, and it
22 maybe acceptable, like you know in case of the
23 pebblebed they may have a viable approach. There are
24 some good ideas there, but still there is nothing new
25 about the process.

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1 MR. KING: Yeah. I mean pebblebed doesn't
2 want to wait for a new framework, so they developed a
3 process that shoehorns their design into the current
4 set of regulations. You're going to hear about that
5 tomorrow.

6 MR. ROSEN: I'm chairing a Generation IV
7 subcommittee on liquid metal reactors and John Flack
8 is here, he's your liaison with the Generation IV
9 effort. And I think what the staff will have in front
10 of themselves, in front of yourselves very soon, like
11 in the first quarter of next year, a pretty good look
12 at where Generation IV is likely to go.

13 And the issue is the one Mario talks
14 about. And it's really there. It's a kind of a
15 chicken and the egg situation, where you don't, you
16 need to kick off with some work with the Generation IV
17 people. And the right, the question is the timing.
18 When are you really going to do it? When are you
19 really going to bring them in?

20 And then ask them for their views and
21 bring some focus to this in terms of what NRC does.

22 MR. KING: We have some work underway
23 through a NERI, well DOE NERI program that involves
24 MIT and Sandy and some others looking at a, you know,
25 a risk based, a risk informed approach. And the staff

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1 has interest in that. And what we've committed to do
2 right now is provide a paper to the Commission in June
3 of '02, with our recommendation on whether or not to
4 proceed and develop such a frame work.

5 Our view is in that paper we would have
6 done enough thinking to sort of layout the concept so
7 the Commission has an idea of what they are being
8 asked to approve. So that's our, that's our schedule
9 for this year. Now we expect the NEI is preparing a
10 white paper on their views on this whole thing. They
11 now say it's February before we're going to get that.

12 The NERI program, I'm not sure exactly
13 what the schedule is for that or the end product. And
14 the staff, again there is a budget issue. How much
15 resources are we going to get to work on that this
16 year, which hasn't been settled.

17 MR. ROSEN: I've been very concerned in
18 that role, in my role in Gen IV, that the DOE would
19 not coordinate well enough with the staff and there
20 would come a time when it was too late to move and
21 the, and NRR would say before we move an inch on this,
22 we need x, y and z, and there wouldn't be any time
23 anymore. That's the problem that Mario has pointed
24 out. And I think we need to head that off, and the
25 people to head it off are you by saying, by taking a

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1 proactive stance with DOE on Gen IV.

2 MR. KING: I agree with you. I think --

3 MR. ROSEN: So you need, if you want to
4 talk about graphite, for example graphite moderated
5 reactors, there's some materials research you need,
6 you need to be funding on graphite right now, for
7 example.

8 MR. KING: Well, I think just to be able
9 to review an HTGR, there's probably a number of things
10 we ought to be thinking about doing right now. And on
11 top of that, to have a new licensing framework which
12 in our view ought to be technology neutral. You ought to
13 start with some high level criteria and work down into
14 some principles and some guidelines or what, you know,
15 goals, whatever we want to call it.

16 To some degree, when you get down to some
17 level it's all technology neutral. And then clearly
18 when a design comes in, say, that's an HTGR, you have
19 to look at specific HTGR issues. But there ought to
20 be a way to set that up so that you don't have to go
21 through everything in the regulations today and say
22 does it apply, not apply, and explain why. Yeah,
23 John?

24 MR. FLACK: Yeah, John Flack with
25 Research. In fact, I was just off the phone with Rob

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1 Faslouce(phonetic) about an hour and a half ago
2 talking about the working groups and the possibility
3 of us getting engaged at the working group level to
4 already to start to understand what the regulatory
5 issues might be. So I think this is going to start to
6 happen, it's just, we're just at the very beginning
7 stages of it.

8 But I agree. I think there's more that we
9 can do with the ongoing effort of Gen IV. In fact,
10 this is what the GOE, the Gen IV work, right.

11 VICE CHAIRMAN BONACA: But it seems to me
12 that, I mean if you at some point, there is a pressing
13 need to integrate the deterministic process and the
14 risk informed process. You know, right now we're
15 still struggling and even option three will never take
16 us there. I mean there is some initiative to, but you
17 would want to have a new licensing process that
18 incorporates risk information as an integral part of
19 the approach.

20 And right now, I mean we're still
21 struggling and the Exelon approach really is not doing
22 that yet.

23 MR. NEWBERRY: I think, just let me
24 underline our emphatic agreement with this point. And
25 also noting that we are already experiencing

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1 significant budget pressures here between, and this
2 was a discussion an hour ago, between supporting --

3 VICE CHAIRMAN BONACA: Yeah.

4 MR. NEWBERRY: -- decision making and
5 actual views versus trying to get out ahead on the
6 framework issue.

7 CHAIRMAN APOSTOLAKIS: That would qualify
8 as an innovative case work.

9 MR. ROSEN: So now the budget issue is
10 right there with the DOE program, it's a wonderful
11 situation because there you can say to DOE, now it's
12 time for some DOE money to come in flowing. It
13 shouldn't be just agency money. It's a DOE program
14 which intends to support a new generation of reactors
15 for deployment by 2030, okay. It's 2002, it's time to
16 start spending a little money.

17 VICE CHAIRMAN BONACA: And I don't think,
18 you're absolutely right. And I don't think that the
19 development of the concept is going to be resource
20 intensive for prospective of a lot of money for labs
21 and so on. There's going to be more trying to tap the
22 industry and tap everybody else and come up with a
23 concept that the industry can be committed to that
24 integrates in fact this perspective that I know we
25 just can't put together.

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1 I mean the deterministic approach and the
2 risk informed one. So, but until you have some
3 progress made there, we'll be always prevented by
4 some, somebody putting a new proposal in for to do it.
5 But you know what, I mean let's be realistic.

6 Intellectually, yes, this is a very
7 challenging and interesting thing to do. But from a
8 practical point of view, I think it scares people. I
9 mean especially potential licensees, you know. But to
10 go with a new regulatory system now, what are we
11 doing? I mean we're going to have all sorts of issues
12 come up. At least the one we have now has been tried.
13 And if we can change it a little bit, so I am very
14 sympathetic with their, with their views.

15 So I have a question about doing, I mean
16 beginning a discussion on how to do it, how much we
17 should, that's exactly what should be done, I think,
18 in the development of framework. They might be
19 radically different if --

20 CHAIRMAN APOSTOLAKIS: Look, am I going to
21 disagree with you? No. I'm just telling you that I
22 feel that, you know, when these people come and they
23 want to use as much of the existing system as
24 possible, even though I get upset perhaps that I don't
25 see much innovation, well, I understand though that

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1 their problem is really to get a license.

2 MR. KING: Well, if we go forward with
3 this new framework, I think you're right. That's
4 clearly an innovative approach. That's a clean sheet
5 of paper approach. What?

6 CHAIRMAN APOSTOLAKIS: Therefore, it will
7 not be funded. Remember my words.

8 (Laughter.)

9 CHAIRMAN APOSTOLAKIS: The system will not
10 be funded. Go ahead. Have you heard of Cassandra?

11 VICE CHAIRMAN BONACA: Good, that's
12 exactly what I was thinking about, Cassandra. Who is
13 she?

14 CHAIRMAN APOSTOLAKIS: The mother of
15 Hector.

16 MR. KING: In a broad sense, the types of
17 issues --

18 CHAIRMAN APOSTOLAKIS: Yes, she was a
19 broad.

20 MR. KING: -- to deal with in our work and
21 research are the things that come out of
22 preapplication reviews, which are technical issues on
23 designs, as well as some policy issues. And as I
24 said, I think the bulk of the effort is going to be
25 developed, or work put toward infrastructure

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1 development. It includes the framework.

2 Part of that is also looking at what
3 skills and capabilities do we need? And along with
4 that comes the resource issue, and that's what's still
5 being worked on right now. Okay, technical issues.
6 As I said, we started with PBMR back in late April.

7 We have gotten to the point where they
8 have a number of technical issues. This is not a
9 complete list, I just tried to list some of the bigger
10 ones here. The review is still in progress, in fact
11 I got a conference call with Exelon this afternoon to
12 talk about when they're going to give us some
13 information that we need to do our job.

14 But I think clearly the big issues that we
15 see are fuel performance and qualification. That
16 involves a whole host of things. You know, what needs
17 to be done in terms to demonstrate the fuel, how much
18 do you want to test, under what conditions, is
19 accelerated testing okay or not okay. There's a whole
20 host of questions.

21 CHAIRMAN APOSTOLAKIS: So, let's come back
22 again to Dr. Bonaca's program. In terms of the
23 research plan, you at some point plan to prioritize
24 these or do work on all of these or what? I mean this
25 is not a meeting on the --

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1 MR. KING: This is, we're talking about
2 the PBMR preapplication review. We --

3 CHAIRMAN APOSTOLAKIS: These have to,
4 okay.

5 MR. KING: -- we intend in the
6 preapplication review to try and provide some feedback
7 to Exelon on these issues in terms of, let's just take
8 fuel for example. They are going to come in and
9 propose a fuel test program to demonstrate their fuel
10 performs as advertised. We would like to give them
11 some feedback and say, yes, that's okay, no it's not
12 okay, you don't include this or that.

13 Right now we're wrestling with are you
14 going to give us enough information so we can even
15 make a call like that or give some preliminary
16 feedback. And as you march through these issues, on
17 the pebblebed we intend to try and give as much
18 feedback as we can at the preapplication stage, so
19 when they prepare an application it's something, you
20 know they know what to put in it and we know what to
21 expect. Now, the flip side of this is it, what do we
22 need to develop so when an application does come in,
23 we can actually review it and have some confidence in
24 the decisions we make.

25 And that's where it gets to, do we want to

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1 develop a helium version of TRAC, a helium version of
2 Melcor? Do we want to do some independent testing of
3 graphite, high temperature materials, fuels? Same
4 thing on AP-1000. Do we want to do some independent
5 thermal hydraulic testing with this scaled up design.

6 So those are the questions we're wrestling
7 with right now. The details, trying to give Exelon
8 feedback on some of these issues and the things
9 they're telling us, that part is funded, that part is
10 underway. We intended to start meeting with the
11 committee probably around February, on the pebblebed
12 issues, and go through them in detail in terms of
13 here's the issue as we see it.

14 Here's our position. Here's the feedback
15 we think you ought to give Exelon and get the
16 committee to weigh in on that, so when we prepare a
17 paper, which right now is scheduled for June, to go to
18 the Commission to identify what our positions are,
19 that we've got the committee's feedback on that.

20 So that's our plan on the pebblebed. AP-
21 1000, NRR has the lead on that. I don't know exactly
22 what their scheduled is for interacting with the
23 committee, but our piece is to look at the passive
24 ECCS performance on this scaled up design.

25 MEMBER POWERS: It's interesting when the

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1 subject of AP-1000 comes up, nearly everyone comments
2 on the heightened containment.

3 MR. ROSEN: Could you talk a little
4 louder, Dana.

5 MEMBER POWERS: The heightened
6 containment, otherwise known as level arm with a tank
7 of water on the top. Is no containment part of this
8 for research here?

9 MR. KING: The whole issue of containment
10 and severe accident behavior in the scaled up design
11 right now is part of what's called the Phase 3 review.
12 We're in Phase 2, which is looking at the thermal
13 hydraulic testing needs. Exactly what role research
14 is going to play in that is, again, it needs to be
15 worked out.

16 It's not that it's not going to be looked
17 at, it just hasn't been looked at yet. Okay,
18 potential policy issues. Just quickly on the
19 pebblebed. Again, this is not an exhaustive list, but
20 some of the bigger ones, you know, certainly
21 containment versus confinement, their desire to have
22 a much reduced emergency planning zone. The issue
23 you're going to hear about tomorrow on the licensing
24 approach using frequency criteria and sort of a, their
25 version of a farmer curve to define safety

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1 classification of equipment and the acceptance
2 criteria for the various design basis accidents,
3 leading ultimately, the Commission probably needs to
4 weigh in on that.

5 You'll hear our preliminary views on that
6 tomorrow. The whole role of the regulator in fuel
7 fabrication now on an HTGR, where some people say,
8 well, the guy at the controls of the fuel fabrication
9 plan has more to do with safety than the guy at the
10 controls of the reactor itself. How do we, I mean how
11 do we regulate that?

12 Are we going to regulate the process now?
13 Are we going to sample the product? Overseas
14 fabrication, there's a whole bunch of things that are
15 wrapped up in that. Again, these are things --

16 CHAIRMAN APOSTOLAKIS: Much like the
17 software liability issue, huh?

18 MEMBER KRESS: It's a lot like that.

19 CHAIRMAN APOSTOLAKIS: It's the same
20 thing, process versus product. That's a problem we
21 had four years ago here.

22 MR. KING: And then the bottom issue is
23 the general one, the frame work issue, which we tend
24 now to go to the Commission in June and get a policy
25 reading on do we proceed with that or not. Wrapped up

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1 in the infrastructure question is, and we're looking
2 at the resources that are available and where do we
3 put them, is sort of the broader issues of how much
4 independent capability should we have?

5 I mean you look at Lightwater reactors and
6 where we stand today. And millions of dollars on
7 fuels research, severe accident research, thermal
8 hydraulic research. All of that is PRAs information.
9 All of that provides a foundation on which we make
10 decisions today. We don't have much of that for gas
11 reactors or liquid metal reactors.

12 How much do we want to develop? How much
13 do we need? And that sort of is going to feed into
14 then how much money and what activities should
15 research be doing to develop infrastructure. The
16 issue of cooperative research. We had our workshop on
17 HTGR safety and research issues. We're trying to
18 follow up on that and see where it might make sense to
19 plug into some of these international HTGR research
20 programs.

21 Does it make sense to plug into with
22 licensees maybe and share costs of doing some of this.
23 If we can agree on the information that's needed, why
24 not share costs to get it. There's issues like that.

25 MR. ROSEN: Tom, one of the things that

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1 Generation IV long ago concluded is that the U.S.
2 government can't afford to do this alone.

3 MR. KING: Yeah.

4 MR. ROSEN: So Generation IV is an
5 international effort. So I mean I think it would be
6 surprising for me to hear ultimately that this country
7 decided to make four Generation IV reactors. The
8 regulation of them is a domestic issue. I'm not sure
9 that would be a viable result. What I'm saying is I
10 think if you're going to design and fund and test and
11 build these things internationally, you also have to
12 regulate them in some sort, with some sort of heavy
13 international involvement.

14 MR. KING: That's clearly another policy
15 issue.

16 MR. ROSEN: It's a difficult question
17 because in the way regulation is done in different
18 countries.

19 MR. KING: Yes, yes.

20 MR. ROSEN: But you can't even define a
21 research program unless you, unless you think about
22 the regulators around the world's attitudes towards
23 given designs.

24 MR. KING: I'm not sure, you can't design
25 a research program, I think clearly an international

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1 research program is better than just a going it alone
2 program. But right, each country may have different
3 views on what's important and what the needs are and
4 how do you work that out so you can agree on
5 something?

6 MR. ROSEN: Well, you have to make sure
7 you don't, you put it together in a sense, in a way
8 that's, that doesn't leave a lot of big holes and
9 doesn't do to much duplication.

10 MR. KING: Right, right. Okay. I think
11 Slide 8, we talked about, the future plant licensing
12 framework. There is interest out there, and there's
13 also interest on the research staff to work on that.
14 Key considerations that we would want to do some
15 thinking on before we ever went to the Commission and
16 made a recommendation would be, and what's the scope
17 of what's going to be covered by this new framework.

18 Is it public protection, worker
19 protection, environment protection, property
20 protection? How would you structure this thing?
21 Starting with some top level goals on risk, on
22 safeguards, on maybe some other things. Maybe put
23 some principles in that apply to every, every future
24 design, defense and depth, ALARA, cost benefit,
25 performance monitoring, good engineering practices.

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1 I don't know, you can come up with a list
2 of things that you might think would qualify as a
3 principle. And then to implement those principles,
4 what kind of criteria and requirements would you come
5 up with. You would certainly need some risks metrics
6 and criteria. Clearly the CDF and LERF maybe okay for
7 today's LWRs, but that's, LERF particularly was based
8 upon NUREG-1150, which is today's LWRs and I'm not
9 even sure apply to something like IRIS.

10 Do we want to develop some technology
11 neutral general design criteria? Do we want to
12 reference various, either international or national
13 codes and standards, I think apply to everybody. Are
14 there processes --

15 MEMBER WALLIS: I'm sitting here listening
16 and it seems to me that what you're laying out here is
17 almost as much work as designing the reactor itself.
18 Why is it such a huge task?

19 MR. KING: Why is this such a huge task?

20 MEMBER WALLIS: Yes, it seems to be a huge
21 task.

22 MR. KING: Because there's a lot of things
23 to think about. When you're going back and starting
24 with a clean sheet of paper --

25 MEMBER WALLIS: Well, suppose I just said

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1 forget it, take the, get the regulations and --

2 MR. KING: Just take today's and --

3 MEMBER WALLIS: -- and see how far you can
4 go with that.

5 MR. KING: That's what's being done today.

6 CHAIRMAN APOSTOLAKIS: And when they say
7 that, we should be very understanding.

8 MR. KING: I personally, it can be done.
9 I think the amount of discussion and opinions that
10 we're going to have to deal with are going to be quite
11 large. But I think it's a certainly doable project.

12 VICE CHAIRMAN BONACA: I don't think it
13 would be, it would utilize a lot of elements of what
14 has been done before.

15 MR. KING: Yeah, I think there are more
16 general design criteria. A lot of them are technology
17 neutral and written pretty well. You pull them out
18 and you use them.

19 VICE CHAIRMAN BONACA: The ingredients are
20 the same pretty much. The question is how do you put
21 them together.

22 MR. KING: And I think if you can agree
23 upon the basic attributes that ought to be in here,
24 then you can frame, you know, what's the best way to
25 describe those to put some criteria or guidance in

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1 dealing with those. There's another part that goes
2 with this, if you can lay all that out, you then have
3 to figure out what are the acceptable methods and data
4 that can be used to demonstrate compliance with these
5 things. So there's the flip side to that.

6 MR. ROSEN: There is one still in place in
7 the universe where things will still be the same. And
8 that's the Commission Safety Goal Policy Statement,
9 right?

10 VICE CHAIRMAN BONACA: No.

11 MR. ROSEN: A tenth of one percent.

12 VICE CHAIRMAN BONACA: That's LWL.

13 MR. ROSEN: Why wouldn't you say that no,
14 that the new technology we put in place should not be
15 any, should not harm, should not contribute risk
16 greater than a tenth of one percent.

17 MEMBER KRESS: One reason is your comment
18 that they are going to be, for a while they're not
19 asking just for this country, they're asking for
20 various places. There's no reason other countries
21 ought to have the same safety codes.

22 MR. ROSEN: You think that other countries
23 could have tighter goals or looser goals?

24 MEMBER KRESS: Yeah, it's a matter of risk
25 management.

1 CHAIRMAN APOSTOLAKIS: Or different
2 methods.

3 MR. ROSEN: Well, yeah, now I understand
4 your point and I think it's a good one. And I think
5 the question though is then can we all have the same
6 reactors. We went, in the Generation IV program, the
7 idea was to share the costs and build reactors that
8 are safe, proliferation resistant, etcetera, etcetera,
9 but they would be designed and it would be not just
10 one reactor. There would be several different kinds.

11 But the idea that they would have
12 different ultimate safety goals is one that hasn't
13 been raised before, I don't think. At least in polite
14 discussion.

15 CHAIRMAN APOSTOLAKIS: Well, we have come
16 up with a number of high level goals. But the other
17 thing is that we had a workshop at MIT about a year
18 ago. Not on that particular Generation IV design, but
19 somebody said, boy, we're going to have a thousand of
20 those.

21 MR. ROSEN: Right.

22 CHAIRMAN APOSTOLAKIS: A thousand? And
23 goals would be the same? How can that be? I think
24 when the Commission developed the goals they had in
25 mind, you know, more or less of what the situation was

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1 at the time, with 105, 109 units. Here is a guru on
2 goals behind you, Steve, so if I build 1,000 reactors
3 tomorrow, Joe, should I keep the goals the same? I
4 must, at 4:15 we recess. There is other people coming
5 --

6 MR. ROSEN: -- which is a key issue is a
7 level of safety, which is exactly what you're talking
8 about?

9 CHAIRMAN APOSTOLAKIS: Yeah, yeah.

10 MR. KING: And that can be, you know,
11 different QHOs or it can be, are we now going to talk
12 about environmental protection or property protection.

13 CHAIRMAN APOSTOLAKIS: That's right. DID
14 is what?

15 MR. KING: Defensive data. See, now they
16 have a code for it so you --

17 (All talking at once.)

18 MR. KING: Okay, the last two slides, well
19 the last, next to the last slide is schedule. I won't
20 go through it in detail, but you can see that's our
21 schedule for both the PBMR and the research plan. And
22 we tried to put in the rough time frame of when we'd
23 like to come back and start talking the details with
24 the committee. And the last slide is just, we've been
25 thinking about what research we need with AP-1000,

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1 IRIS and HTGRs in mind.

2 There are a number of candidate ideas we
3 have. Again, the resource issue has to be settled and
4 the priority issue has to be settled before we can
5 settle this. That's it.

6 CHAIRMAN APOSTOLAKIS: Thank you. You
7 have 30 seconds.

8 VICE CHAIRMAN BONACA: So this is the
9 first installment and then we're going to have an
10 extra two hours? I was hoping, no. Okay, we have now
11 a brief presentation from you?

12 MR. MAYFIELD: I'll keep this very brief,
13 and the point of the new challenges is we are working
14 and have been for some time, but we're redoubling some
15 efforts to try and get ahead of some of the
16 degradation issues. Over the last year we've seen
17 that more than a year, cracks in piping that we never
18 anticipated seeing. We're seeing cracks in CRDM
19 housings that we never anticipated seeing.

20 We're seeing some degradation in steam
21 generator tubes that goes a bit beyond what we've
22 seen. So we're looking in the materials research
23 program to try and get on the leading edge for a
24 change. Not that I really think we'll get there in
25 the next year or so, but looking out in the longer

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1 term, how, what kind of work can we, can and should we
2 start in the next year or to two years that hopefully
3 would get us in a position to be able to deal with
4 emerging issues, new challenges.

5 Not that we would guess precisely what
6 they are, but that we'd have enough information to try
7 and deal with them. That sort of takes us to the last
8 bullet that was on Roy's Slide 10, in terms of the
9 anticipatory research. We've been challenging
10 ourselves to look ahead and try and identify areas
11 where new degradation, new damage mechanisms for the
12 materials issue and same kinds of things in the other
13 areas.

14 We are reaching out to the staff in a
15 fairly formal way this year asking for their ideas
16 well in advance of the budget formulation to try and
17 give people enough time to think about this and to put
18 forward their best ideas in a way that gives them a
19 fair chance when we sat down to put together the
20 budget and decide what issues we're going to put
21 forward.

22 We are also interested in input from this
23 committee, as well as, I think next year we're looking
24 to reach out, again formally, to a much broader
25 audience or the external stakeholders. So that's sort

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1 of where we were going with the idea of the new
2 challenges.

3 And we know they are out there. Materials
4 just is a good example of it, but we're interested in
5 gaining some insights and suggestions for areas that
6 don't necessarily have an immediate application, but
7 where they have, there's some reason to believe that
8 it's an area that we need to explore.

9 MEMBER POWERS: You're focused on the
10 existing fleet of reactors in this call for --

11 MR. MAYFIELD: Right now it's on the
12 existing fleet of reactors, but it's, as we go along,
13 as that --

14 MEMBER POWERS: As Tom's work expands, you
15 expand it. Right now you're looking at that.

16 MR. MAYFIELD: Yes, so that was all we
17 really wanted to say.

18 MEMBER POWERS: I think, by the way, this
19 reaching out to your staff early in this process is
20 just a heck of a good idea.

21 MR. MAYFIELD: We'll see how it works.

22 MEMBER POWERS: Yeah, well, it's one of
23 those things that --

24 MR. MAYFIELD: We've got a lot of smart
25 people.

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1 MEMBER POWERS: Yeah, it may not work too
2 well now until you persuade them that you're actually
3 going to listen to them. I mean sometimes you guys
4 put them through contingency exercises that may change
5 their view just a tad.

6 (Laughter.)

7 MR. KING: Okay, that's it, Mario.

8 VICE CHAIRMAN BONACA: Okay, well I thank
9 you very much for your patience. Clearly we were
10 discussing right now that at some point this committee
11 needs to reflect on what we've heard today, and then
12 make a decision, you know, what we should have as a
13 content for the report. I mean these are not likely
14 subjects. In fact, that's possibly the scope.

15 And so hopefully we can get half an hour
16 of time before --

17 CHAIRMAN APOSTOLAKIS: We will find more
18 than a half an hour. Remember that we, we're going
19 through Saturday noon or something, so we'll find the
20 time, don't worry.

21 VICE CHAIRMAN BONACA: And what I would
22 like to do is clearly we leave this meeting with some
23 commitment from some members to contribute some talk--

24 CHAIRMAN APOSTOLAKIS: Sure.

25 VICE CHAIRMAN BONACA: -- on these areas,

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1 so that I can begin to put them together. So with
2 that, I'll give you back the --

3 CHAIRMAN APOSTOLAKIS: Thank you,
4 Chairman. We'll recess until 4:33.

5 (Whereupon, the foregoing matter
6 went off the record at 4:14 p.m.
7 and went back on the record at
8 4:35 p.m.)

9 CHAIRMAN APOSTOLAKIS: The meeting is back
10 in session. Next item proposed update to 10CFR, Part
11 52. Cognizant member is Dr. Shack. Bill.

12 MEMBER SHACK: This is just a briefing on
13 a proposed update to 10CFR, Part 52, which is a
14 licensing alternative for advance reactors. The staff
15 is proposing some changes in the rule and we're just
16 going to get an update on those proposed changes.

17 MEMBER POWERS: Do we have a petition?

18 MEMBER SHACK: There are two petitions, in
19 fact, I think. Yup, speaking of petition.

20 MR. WILSON: Thank you, Mr. Chairman, I'm
21 Jerry Wilson and I'm with the new reactor --

22 CHAIRMAN APOSTOLAKIS: Can you raise the
23 screen a little bit. Raise up?

24 MR. WILSON: Yes, let's see if I can move
25 this up.

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1 CHAIRMAN APOSTOLAKIS: I think that's the
2 one, isn't it? Don't worry about it, don't worry
3 about it.

4 MR. WILSON: He knows what to do.

5 CHAIRMAN APOSTOLAKIS: Very good.

6 MEMBER KRESS: And would you get that spot
7 off there?

8 (Laughter.)

9 CHAIRMAN APOSTOLAKIS: Okay, Mr. Wilson.

10 MR. WILSON: By way of background, I've
11 been working on the development and implementation of
12 Part 52 since 1987. Now when the Commission issued
13 Part 52, in 1989, they stated that this was the most
14 important change in the NRC's licensing process in
15 over 30 years. At that time we created three new
16 licensing processes, but we had no experience in using
17 them, so right from the beginning we planned to come
18 back at a future date, after we had some experience,
19 and do this update rule making.

20 Now what has happened since then? Well,
21 let's do background here. Shortly after Part 52 was
22 issued, the Department of Energy sponsored a 30 site
23 permit demonstration program that was participated in
24 by NRC and industry representatives. And the
25 conclusion of that effort was that there are no

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1 regulatory impediments to achieving an early site
2 permit.

3 Also we received five applications for
4 design certification and granted three of them. And
5 the committee was involved in the review of those
6 applications. The, I believe the NRC demonstrated
7 flexibility in the implementation of those
8 requirements and showed that that process can work.

9 And finally for approximately ten years
10 the staff interacted with stakeholders on certain
11 implementation issues associated with the combined
12 license review process. We issued a SECY paper in
13 April of last year on that, and the Commission
14 approved those issues in its SRM on September of 2000.

15 So with that we believe that Part 52 is
16 ready to be used, but as we said, intended to do a
17 rule making. So we prepared a rule making plan that
18 the Commission approved in January of '99.

19 And with that approval, the Commission
20 encouraged us to have early interaction with
21 stakeholders. So I posted on our rule making website
22 and noticed this rule making in June of 1999, and then
23 sent letters to stakeholders that identified a number
24 of issues that we were considering for this rule
25 making and invited comments.

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1 In response to that we only received one
2 comment that was from the Nuclear Energy Institute and
3 they submitted that in April of this year. Now in
4 August the Commission issued an SRM and it suggested
5 the staff share draft rule language before issuance of
6 proposed rules for certain rule makings. One of which
7 was Part 52.

8 And so in September of this year, we
9 posted draft rule language on Part 52, on our rule
10 making website. We also issued a Federal Register
11 Notice notifying the public that this language is
12 available. And finally issued a letter to the
13 advisory committee providing the draft language for
14 their consideration.

15 Now with regard to the rule, as I said
16 earlier, the NRC believes that the rule is ready to be
17 used, and has stated that in a recently issued SECY
18 paper on our readiness assessment. Because of that
19 and because of the experience in using the rule, we
20 believe there's no need for any significant changes to
21 the rule to be used in future applications.

22 The other point I want to make on that is
23 at the time we were developing Part 52, the staff was
24 also involved in some advance reactor reviews. And we
25 had those designs in mind at the same time, and so we

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1 believe that these licensing processes in Part 52 can
2 be used as they are today.

3 But having said that, I also believe that
4 there are some changes that can be made. Things of
5 clarifications and corrections. I thought I'd walk
6 through a few examples here. So if you'll see in the
7 draft rule language that I provided the committee, we
8 have made some minor changes in Parts 21, 72 and 140,
9 to make it clear that those regulations apply to
10 applicants under Part 52.

11 And the provision in Section 52.17, which
12 deals with the content of your application for an
13 early site permit, we want to make it clear that when
14 you submit an early site permit you are not describing
15 just one particular design that you may want to build
16 on that plant, maybe a range of designs.

17 And so we've envisioned that an applicant
18 would submit enveloping or bounding characteristics
19 that would deal with the types of releases and other
20 factors for different types of designs.

21 And another item we made in the combined
22 license process is clarifying findings relative to
23 ITAAC. There's two sections in the regulations where
24 it talks about findings and we're trying to clarify it
25 that in 52.99, that's where we discuss inspections and

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1 notifications at ITAAC are complete, but that in
2 53.103, where the Commission is making its decision on
3 authorization to operate, that's where the
4 Commission's finding on whether or not ITAAC or the
5 net is made.

6 So these are some examples of the types of
7 clarifications that you'll see in the draft rule
8 language. Now also we have what I would consider
9 corrections to the rule. One is dealing with
10 Appendices M, N, O and Q. When the Commission created
11 Part 52, they directed the staff to move those other
12 licensing processes to Part 52, and we did that. But
13 through some administrative problems that wasn't
14 deleted from Part 50, so we're correcting that in this
15 rule making.

16 Also we want to make it clear that an
17 applicant for a combined license that's using a custom
18 design, is not referencing a certified design, would
19 provide a plant-specific PRA. And along those lines
20 also an applicant for a combined license, if you're
21 familiar with the design certification requirements,
22 there's a requirement on testing for new design
23 features. And we want to make it clear that that
24 would apply to someone coming in for a custom design
25 that it's not referencing a certified design.

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1 CHAIRMAN APOSTOLAKIS: I have a question
2 on that.

3 MR. WILSON: Certainly.

4 CHAIRMAN APOSTOLAKIS: The language that
5 is being proposed says, and for the members it's one
6 hundred and page 12, if you want to follow that, over
7 Tab 5. It says --

8 MR. MARKLEY: That would be Page 7 of
9 yours, Jerry.

10 MR. WILSON: Thank you.

11 CHAIRMAN APOSTOLAKIS: Oh, I'm sorry,
12 yeah, yours is seven. We always inflate the number of
13 pages.

14 MR. ROSEN: You said 112, George?

15 CHAIRMAN APOSTOLAKIS: Twelve, 112, Tab 5.
16 You're looking at the wrong tab.

17 MR. ROSEN: I'm looking at Tab 5.

18 CHAIRMAN APOSTOLAKIS: It doesn't work.

19 MEMBER KRESS: I don't know where the
20 hundred comes from.

21 MR. ROSEN: Tab 5, no, 112?

22 MEMBER KRESS: There's no 112, just 12.

23 CHAIRMAN APOSTOLAKIS: It's getting late.
24 Okay, the language is the following. Item 4, the
25 second area from the top. An application referencing

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1 a certified design must include the plan-specific PRA
2 that uses a design-specific PRA and is updated to
3 account for site-specific design information and any
4 design changes.

5 So I'm trying to understand what this
6 means now. It means that the Reviewer of the plant-
7 specific PRA cannot question the design-specific PRA
8 that was used in the certification? Because that was
9 part of the certified design? Is that how this would
10 work? Did you find it on Page 7? Item 4, second
11 paragraph.

12 MR. WILSON: Okay, I'm with you now, all
13 right. The idea in general, and then I'm going to
14 give you a clarification. In general, is that
15 information reviewed and resolved or to use the word
16 certified in the design certification process, if you
17 reference that design that information comes forward.

18 And since it's resolved, yes you wouldn't
19 re-review that information. However, in the case of
20 PRA it's a special circumstance. And during the time
21 that we were working on the actual language that is in
22 what we call the design control document, the industry
23 requested that a lot of the details in the PRA not
24 come forward into the certified design information.

25 And so in this particular case there

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1 actually is rather limited information that would come
2 forward and fit into that category that you're
3 describing of not re-reviewed. Now what we are
4 talking about here though is that we would expect that
5 you would take what is in the certified design
6 information for the PRA.

7 You would add in the site-specific design
8 features, such as the ultimate heat sink, and you
9 would also modify it to reflect any design changes
10 that the combined license applicant may have requested
11 to that certified design. And so that was the idea of
12 this rule language.

13 CHAIRMAN APOSTOLAKIS: All right. I
14 understand that, but I guess I'm a little
15 uncomfortable with this. For example, let's take, I
16 mean I was on the committee when we approved,
17 certified the 8600 PR design, plus you know, the PRA
18 package.

19 And they did, you know, certain things
20 that were probably state-of-the-art at the time. It's
21 been now a number of years. One that comes to mind is
22 this software liability issue, they did a few things.
23 Let's say somebody now comes with an 8600 application
24 in the year 2006, and it comes to you for a review in
25 the year 2010.

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1 That would be a full 12 years or so, 14
2 years after the original design was certified, and we
3 know, I mean the state-of-the-art advances, of course.
4 Now perhaps at that time we are doing things better in
5 certain areas. Software liability and other areas.
6 Is your reviewer bound to accept what Westinghouse did
7 in 1995? Even though the state-of-the-art has
8 advanced?

9 MR. WILSON: In general, yes. And as I
10 said in the case of the PRA there was very little of
11 the PRA other than the basic assumptions that came
12 forward into this certified design information. So
13 certainly we would expect that we are not requiring
14 that they redo the PRA and redo it up to the latest
15 standards.

16 CHAIRMAN APOSTOLAKIS: But is it, is there
17 anyway you can find the language for this paragraph
18 that allows for some updating of the design-specific
19 PRA without really penalizing the applicant. I mean
20 I appreciate that the whole point of certification was
21 to, for the applicant to know what they're going to
22 find when they come to us. But to freeze something,
23 like a PRA, I think is unhealthy.

24 MR. WILSON: Well, it doesn't preclude
25 them updating it.

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1 CHAIRMAN APOSTOLAKIS: I know it doesn't.

2 MR. WILSON: It's just that we're not
3 requiring that update at this point in time.

4 MR. ROSEN: That's what George's problem
5 is.

6 CHAIRMAN APOSTOLAKIS: Yeah, that's my
7 problem.

8 MR. ROSEN: He wants you to require it.

9 CHAIRMAN APOSTOLAKIS: If you put the
10 language there that will give the reviewer flexibility
11 to, you know, to work with the latest technology. I
12 mean we do that in everything else.

13 MEMBER SHACK: Well, you tell them to use
14 the addition of the code that they built the plant to.

15 CHAIRMAN APOSTOLAKIS: They what?

16 MEMBER KRESS: He's just agreeing with
17 you.

18 MEMBER POWERS: Yeah, if somebody builds
19 to a particular addition to the code, the government
20 would be against that addition to the code.

21 CHAIRMAN APOSTOLAKIS: Well, I appreciate
22 that but I mean --

23 MR. MARKLEY: PRA is different.

24 CHAIRMAN APOSTOLAKIS: It's evolving all
25 the time. I mean we know that, that's why it's risk

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1 conformed and not risk based. Let me use that
2 argument now --

3 MEMBER POWERS: George, let's consider
4 people in both worlds. I mean they can approve the
5 data, they understand new things, you don't make them
6 go back.

7 CHAIRMAN APOSTOLAKIS: We don't.

8 MEMBER POWERS: Well, sometimes we do,
9 sometimes.

10 CHAIRMAN APOSTOLAKIS: Yeah.

11 MEMBER KRESS: I think George is right.
12 If we've got new ways to do things with a PRA, new
13 information and we should allow new information to be
14 used.

15 MEMBER POWERS: Allow is different than
16 require.

17 MEMBER KRESS: I really would not like to
18 require, because NRC needs to have the best
19 information it can.

20 CHAIRMAN APOSTOLAKIS: This is a
21 regulatory decision here. I mean you can't say I will
22 close my eyes to new information because the law says
23 I have to go with what was valid 15 years ago.

24 MR. ROSEN: But it's not like it's an
25 undue burden on the licensee. He can make his mind up

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1 not to build a plant if the rule requires an updated
2 PRA based with new human error models. He might say
3 that's too hard, I won't build the plant.

4 MEMBER POWERS: That's a non, a non-
5 starter. I make this thing incredibly onerous and if
6 you get it and want to build a plant, that's okay.

7 CHAIRMAN APOSTOLAKIS: No, that's your
8 decision. Well, how about if you say --

9 MR. ROSEN: That's extreme interpretation
10 of what I'm saying.

11 CHAIRMAN APOSTOLAKIS: -- that uses an
12 updated design-specific PRA. I mean, but of course
13 that's open-ended too. I understand you have to --

14 MR. WILSON: Let me add a little more to
15 this.

16 MR. ROSEN: I think here's the answer. It
17 should be tied to the ASME and ANS standards. Because
18 it's a consensus process.

19 MEMBER KRESS: Put the word state-of-the-
20 art PRA.

21 CHAIRMAN APOSTOLAKIS: Oh, my God, no.

22 MR. ROSEN: State-of-the-art is beyond the
23 standard.

24 CHAIRMAN APOSTOLAKIS: Yeah, sure.

25 MR. ROSEN: But there is a standard.

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1 (A lot of people talking at once.)

2 MR. WILSON: I want to add a little more
3 to the discussion.

4 CHAIRMAN APOSTOLAKIS: Of course.

5 MR. WILSON: Internally in the staff we
6 have been discussing this and I have been working with
7 our folks in the responsible branch on this very issue
8 of updating and you probably heard the staff talk
9 about things like living PRA. And in my discussions
10 with them, the staff is considering these issues of
11 updating, but they decided that if they require that
12 or if they propose to have such a requirement, they
13 wanted to do it separate from the particular rule
14 making.

15 So what I'm trying to do now is just be
16 sure we have a PRA that covers the design and defer
17 for now that issue of having someone update what was
18 done during the design certification stage.

19 CHAIRMAN APOSTOLAKIS: Where else would it
20 go?

21 MR. WILSON: Well, it would be a
22 requirement that would be directed at PRAs in general.

23 CHAIRMAN APOSTOLAKIS: No, because,
24 separate rule? No. The think is, you know, with the
25 license renewal thing, because the rule says do it

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1 this way, people are doing it this way. And every
2 time we raise a question about risk, they say, ah, but
3 5054 doesn't say anything about that.

4 And it was done, you know, sometime ago.
5 So I suspect if you put it somewhere else, the same
6 thing is going to happen. The rule itself doesn't say
7 that, so I'm not going to do it. And you end up
8 making regulatory decisions using very old
9 information, possibly.

10 It could valid, I mean I'm not saying that
11 this will happen, but in some areas it might.

12 MR. ROSEN: Well, we've argued, George,
13 about voluntary versus discretionary in the case of
14 the current licensees, and I think it's time for
15 future reactor licensees to not to make is so
16 voluntary. And so I support the idea that we make it
17 required.

18 And the, you know, then the staff can
19 figure out what they mean by a valid, up-to-date,
20 state-of-the-art, plant-specific PRA.

21 MEMBER KRESS: Well, those are words I
22 want in there.

23 MR. ROSEN: Valid, up-to-date, state-of-
24 the-art, plant-specific.

25 CHAIRMAN APOSTOLAKIS: No, I'm willing to

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1 let the stuff come up with the appropriate language so
2 that we don't appear like we want to start everything
3 again from scratch. But I think the idea is that.
4 That we want to be up-to-date.

5 MR. WILSON: I'll go back and talk to our
6 PRA folks.

7 MEMBER POWERS: And find a good reason not
8 to do that, right?

9 (Laughter.)

10 CHAIRMAN APOSTOLAKIS: You see then the
11 rule, one last point. The rule is a bit inconsistent
12 and maybe that's a good argument for doing it. On the
13 previous page, you say if the application does not
14 reference a certified design, the application must
15 contain a plant-specific PRA. And of course it is
16 understood that it will be, you know, according to the
17 state-of-the-art. So if you are not referencing a
18 certified design, you do it one way. If you are, you
19 do it in a slightly different way. Which may not be
20 slightly different, it may be significantly different.

21 MR. WILSON: But you can make those kinds
22 of discussions about design approvals and design
23 certifications in general. I mean once the agency
24 certifies a design, approves a design and said we're
25 going to hold with that approval, we're not going to

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1 revisit it and we don't expect the applicant to come
2 in with changes, then we're always in that situation
3 of down the road when they reference back to that
4 design, it's, that was state-of-the-art at that point
5 in time.

6 MR. ROSEN: Look, a license is a contract
7 between the staff and the licensee. You specify the
8 guy who is about to give something up, which is a
9 license, which is the Commission who is about to give
10 up a license, specifies its requirements for the
11 person who wants it. And the requirements should be
12 just what I said. A valid, plant-specific, up-to-
13 date, state-of-the-art PRA.

14 MR. WILSON: But as part of that we also
15 do regulatory analysis and we have to show house
16 benefit for new requirements.

17 MR. ROSEN: It would be, it would be out
18 of touch for the Commission not to require that they
19 have a policy statement.

20 CHAIRMAN APOSTOLAKIS: New requirements I
21 think regarding the facilities themselves.

22 MR. ROSEN: For new plant? For new
23 designs? Just remember when you talk about old
24 plants, then you are in back fit space. Everybody is
25 thinking back fit space. But if this is a new plant,

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1 where a new contract is being cut with the proposed
2 Contractor, the licensee, and so the Commission could
3 set its requirements.

4 And I recommend that's what its
5 requirements ought to be.

6 CHAIRMAN APOSTOLAKIS: How about if you
7 put, for example, an application referencing a
8 certified design must include a plant-specific PRA
9 that uses the design specific PRA, as a appropriate,
10 and is updated to account for the site-specific design
11 information.

12 VICE CHAIRMAN BONACA: As appropriate?

13 CHAIRMAN APOSTOLAKIS: Is appropriate.

14 MEMBER SIEBER: That doesn't require it.

15 CHAIRMAN APOSTOLAKIS: No, but it gives
16 some freedom to the reviewer to say this particular
17 part is not appropriate anymore. No matter how you
18 put it, it's going to be abused.

19 MR. ROSEN: Actually, George, the law of
20 inverse codification takes over here. The less
21 codified it is, and less specific it is, the more
22 flexibility the staff has to ratchet, to different
23 things and to get inconsistent. The better thing to do
24 is to make it specific in the rule that the licensee
25 needs to come up with a valid, up-to-date, state-of-

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1 the-art, plant-specific PRA, period, if they want a
2 license.

3 CHAIRMAN APOSTOLAKIS: Well, I would, if
4 you want to go that way, I would take Number 2 and
5 Number 4. One is referring to the existence of a
6 certified design, the other to a case where you don't
7 have a certified design. Drop them and replace them
8 by one that says an obligation must include the plant-
9 specific PRA, period.

10 MEMBER SHACK: Rule Number 1 is no
11 regulation can ever require a state-of-the-art.

12 CHAIRMAN APOSTOLAKIS: I didn't say state-
13 of-the-art, I said plant-specific.

14 MR. ROSEN: No, Rule Number 1 is that
15 anybody, state-of-the-art is whatever it is today.
16 And then since it's up-to-date, you have to improve it
17 as the years go on.

18 CHAIRMAN APOSTOLAKIS: No, but what's
19 wrong with just --

20 MR. ROSEN: There's nothing wrong with
21 improving it, that's what we've been doing for years.

22 CHAIRMAN APOSTOLAKIS: What's wrong with
23 requesting a plant-specific PRA, and then leave it for
24 other lesser documents to elaborate on the guidance,
25 the regulatory guidance which are easier to change.

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1 If you put it here it's cast in stone.

2 MR. ROSEN: That's good.

3 MEMBER SIEBER: If you buy a certified
4 design, if you buy a certified design and make no
5 design changes to it, why wouldn't the PRA for that
6 certified design be adequate?

7 MR. ROSEN: Well, because --

8 CHAIRMAN APOSTOLAKIS: A lot of it will
9 be. But a lot of the stuff that is done, you know, by
10 our waiting because we didn't know what to do at the
11 time.

12 MEMBER KRESS: Somebody comes up with a
13 new sequence in shut down mode and fire --

14 MR. ROSEN: And the nature of PRA is that
15 it evolves with the data, with the data from the plant
16 that it's based on. The data for unreliability and
17 unavailability at first is nothing but an estimate.
18 But the second, the first time you update it, it is
19 based on the data from that plant, and so on.

20 CHAIRMAN APOSTOLAKIS: I still remember
21 the discussion with --

22 MR. ROSEN: PRA involves the more closely
23 modeled the performance of the plant.

24 CHAIRMAN APOSTOLAKIS: I still remember
25 the discussion we had in this committee when we were

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1 debating the approval of AP-600, the AP-600 design
2 when it came to the software reliability issue. I
3 mean everybody agreed that nobody knows what to do
4 with it. Westinghouse said we use some failure rates
5 from this source, then we multiply them by ten and we
6 looked at the result. And then we did something else.

7 We did it, and then we said, well, all
8 right, what else can you do? Now in the year 2015,
9 maybe that would not be good enough. That's what I'm
10 saying. Because at that time at least people were
11 pleased at least to see some effort to see what's the
12 impact on the result because they knew that there is
13 nothing out there to help you do it.

14 So would then the applicant be able to
15 say, well, I'm sorry but that's part of the certified
16 design so it's still good enough.

17 MR. ROSEN: And I'm going to update it
18 with current data from reliability --

19 CHAIRMAN APOSTOLAKIS: Yeah.

20 MR. ROSEN: -- reliability from my plant.
21 And we'll do it.

22 CHAIRMAN APOSTOLAKIS: I would just ask
23 for a plant-specific PRA, in the new rule and let the
24 regulatory guides elaborate on the details. Because
25 they are easy to change, right? You can use language

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1 and also, as we all know, a regulatory guidance
2 unacceptable approach. So no one is coming up with
3 another one. But the rule is a rule. I've learned my
4 lesson from license renewal, I'll tell you that.

5 Every time we raise an issue, oh, no, no,
6 no, the rule doesn't say that. Well, that's the way it
7 works and that's the way we're going to do it.
8 Anyway, that's a comment. I mean that's why you're
9 here, right, to get some comments.

10 MR. WILSON: Right, thank you. And moving
11 along --

12 MR. ROSEN: You understand, I'm slightly
13 to the right of the Chairman.

14 (Laughter.)

15 MR. WILSON: You're on my left.

16 CHAIRMAN APOSTOLAKIS: Both literally and
17 figuratively.

18 MR. WILSON: I think in terms of
19 rottenness, I think we're --

20 MEMBER KRESS: That's right, this is
21 Attila the Hun.

22 (Laughter.)

23 MEMBER POWERS: Recognize that the left
24 wing over here may have something to say.

25 MEMBER SHACK: Time to move on, George?

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1 CHAIRMAN APOSTOLAKIS: Fine with me. I'm
2 surprised you haven't said anything.

3 (Laughter.)

4 MEMBER SHACK: I wanted to see how long
5 the rope would string. There's no limit, obviously.

6 (Laughter.)

7 CHAIRMAN APOSTOLAKIS: I'm done, I'm done.

8 MEMBER SHACK: This is a bungee cord.

9 (Laughter.)

10 MR. WILSON: All right, so I gave some
11 examples of clarifications and corrections and their
12 role and there's also some burden reductions. We have
13 a provision now that in the event that you apply for
14 a design certification we also require you to apply
15 for a design approval.

16 That had to do with the fact we had no
17 experience in doing design certification reviews. Now
18 that we have that experience, we don't believe that
19 requirement is needed and we're proposing to delete
20 them.

21 CHAIRMAN APOSTOLAKIS: I'd also like to
22 bring the attention of the committee to hundred and
23 page six where they use, in the second paragraph, a
24 need for power in connection with inter ilia issuance
25 of early site approvals. The use of latin is very

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1 welcome by the Chair. I think especially Dr. Powers
2 should pay attention to that.

3 MEMBER POWERS: If this was the only
4 mistake the Chair had made, then Dr. Powers would be
5 shocked. Since it's not --

6 CHAIRMAN APOSTOLAKIS: I like it. When I
7 saw it I said this is a good rule. Is this a Part 52,
8 okay.

9 MR. WILSON: Now I was also asked to
10 discuss how Part 52 might be used in a future
11 application for the pebblebed design, which the
12 committee has heard about. Now by way of background,
13 Office of Research is doing a preapplication review
14 for the pebblebed design. There's been a SECY paper
15 describing that that was issued in April of this year.

16 And subsequent to that, in May Exelon
17 submitted a letter with a number of regulatory issues
18 that they would like to see some changes on that would
19 facilitate their future application. These are things
20 like anti-trust, annual fees, decommissioning,
21 financial requirements.

22 Also in May 25th, Exelon submitted a
23 licensing plan for the pebblebed where the proposed a
24 sequence of first, requesting an early site permit,
25 then a combined license to build the plant, and then

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1 finally a design certification. And in that letter
2 they also proposed seeking a single license for
3 multiple reactors.

4 Staff issued preliminary reviews on that
5 licensing plan in August of this year, and we stated
6 that their proposed sequence is acceptable but raised
7 some concerns about the issuance of a single license
8 and timing of testing.

9 Now the staff is preparing a SECY paper on
10 these issues and also these other aspects of the
11 single license and testing issues. And I'm
12 anticipating that paper is going to be issued shortly.
13 Now in looking at these various licensing options
14 relative to the pebblebed, with regard to early site
15 permit, Exelon stated they anticipate submitting an
16 application in mid-2002.

17 I see the staff using the early site
18 permit process as it's written with no major
19 obstacles. Now when the combined license comes in,
20 and at the moment we're expecting that in late 2003,
21 although that date, I understand, may slip. But once
22 again, we would use the process as it is written, but
23 we envision, that because it's a gas-cooled reactor
24 there 's going to be a need for some exemptions and
25 licensing conditions in areas that the current

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1 regulations don't cover.

2 But I would say though that most of our
3 regulations will apply to the gas-cooled reactors.
4 Now if they follow up after issuance of the COL with
5 the design certification application, one of the
6 things the staff may do is codify any design specific
7 requirements that come from that combined license
8 review in the design certification rule making.

9 So we'll have some design specific
10 requirements in that situation. Now the staff has
11 prepared a SECY paper that's discussing this process
12 and determining what the appropriate license
13 conditions will be. That preparation, that paper, the
14 staff is going to come and discuss with the committee
15 tomorrow, so I won't get into any discussion on that.

16 So in conclusion, staff believes that the
17 licensing processes in Part 52 are ready to be used in
18 any new applications. We'll have this update rule
19 making underway. We don't think any significant
20 changes are needed to process new applications, and
21 these processes are also applicable to an application
22 for the pebblebed design or, for that matter, any
23 other gas-cooled reactor design. So with that, I'm
24 available for questions.

25 CHAIRMAN APOSTOLAKIS: So what are these

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1 other viewgraphs in your handout?

2 MR. WILSON: Just some back ups.

3 CHAIRMAN APOSTOLAKIS: Oh, okay. I really
4 like that.

5 MEMBER SHACK: On Page 10, the changes in
6 the Tier 2 document --

7 CHAIRMAN APOSTOLAKIS: Which Page 10?

8 MEMBER SHACK: The real Page 10.

9 CHAIRMAN APOSTOLAKIS: The real Page 10.

10 MEMBER SHACK: For the various certified
11 designs now essentially allows them to make changes in
12 the Tier 2 documents with a kind of 5059 kind of
13 freedom. What was the previous one? It doesn't, you
14 know I don't see a line out.

15 MR. WILSON: Oh, I'm sorry. When we did
16 design certification, one of the things about design
17 certification is the backfit. The idea that once we
18 have a resolution on the design we want to lock that
19 in and so that neither the staff nor the applicant
20 would make changes unless it was really significant.

21 And so we created a special change
22 process. So design certification doesn't come under
23 50109 or 5059. And also because the applicants asked
24 for a two tiered documentation, we had change
25 processes for Tier I and Tier 2, and just kind of a

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1 lead in saying there's a rather complicated specific
2 change process.

3 Now we had a 5059-like change process that
4 used terminology very similar to the terminology in
5 the old 5059, unreviewed safety questions and things
6 like that. And so after that was done, the Commission
7 suggested to staff that, hey, we ought to revise this
8 change language to be comparable to that. Plus that
9 also, not only does it give new terminology and new
10 definitions, that's all been worked out with the
11 industry and we have regulatory guidance on how to
12 implement that.

13 And so I wanted to use as much of that as
14 possible, but still keep the basic idea of the higher
15 standards there. And so we went back and we proposed
16 changes to adopt as much of that language as possible
17 so we could also use that underlying guidance.

18 And so basically, I mean the short answer
19 to your question is we took out phrases like
20 unreviewed safety question, and put in phrases like
21 minimal increase.

22 CHAIRMAN APOSTOLAKIS: What is DCD?

23 MR. WILSON: Design control document.
24 When you apply for design certification, you have the
25 standard safety analysis and design descriptions. But

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1 when it came to certifying the design, there was some
2 changes in that documentation. So for example the
3 rule that certifies the design references this
4 documentation and that's all publicly available
5 documentation.

6 So it doesn't have proprietary information
7 in it, and also as I said earlier, the industry asked
8 that a lot of the details on the PRA not be in the
9 certified design information. So that was taken out.
10 So we wanted to create --

11 CHAIRMAN APOSTOLAKIS: Oh, so the PRA is
12 not?

13 MR. WILSON: Most of the PRA is not in the
14 certified design information.

15 CHAIRMAN APOSTOLAKIS: That's good.

16 MR. WILSON: Just the basis assumptions
17 that were used that are associated with those design
18 features that are involved.

19 CHAIRMAN APOSTOLAKIS: There is a
20 statement here on Page 12, that would, in fact, not
21 allow what I asked earlier. So if the PRA is out,
22 that's good. Changing any method, it says, is not
23 allowed.

24 MR. WILSON: So when we took that
25 information out, we needed a new name for that

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1 document and we called it the design control document.
2 But it's --

3 CHAIRMAN APOSTOLAKIS: So updating the PRA
4 in the sense I mentioned earlier, would be allowed?

5 MR. WILSON: There's not much to update.
6 All we retained was basic assumptions that --

7 CHAIRMAN APOSTOLAKIS: All you have to do
8 --

9 MR. WILSON: -- I don't think would change
10 unless the design changed.

11 CHAIRMAN APOSTOLAKIS: Yeah, okay, okay,
12 that's good, that's good. Now there is another
13 question I have on Page 2, your Page 2. The very top.
14 How modular designs are defined?

15 MR. WILSON: Yes.

16 CHAIRMAN APOSTOLAKIS: I understand the
17 first one. It's a nuclear power station designed that
18 consists of two or more nuclear reactor modules. The
19 second one is not clear to me. A nuclear power
20 reactor design composed of subassemblies which, when
21 assembled without a module center structure assistance
22 and components on site, constitutes a complete nuclear
23 power reactor. What is that?

24 MR. WILSON: Let me first start out by why
25 did I do this? If you look at Section 52.103.G,

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1 you'll see there that the Commission may approve
2 authorization to operate on a module-by-module basis.
3 Now where did that come from? Well, that came from,
4 at the time we were writing the rule we were dealing
5 with designs like MSTGR and Prism, where there were
6 two or three reactors that were together in an overall
7 power station.

8 But you can envision a situation where
9 they would be building it and you wouldn't be bringing
10 all three on-line at once. You'd bring them on
11 reactor-by-reactor. And so we wanted to be sure the
12 process would handle that. And we used the term
13 modular at the time, but didn't define it.

14 Well, now the difficulty with modulars,
15 the industry uses that term in a number of different
16 ways. And we need to get this clarified and make sure
17 it fits in with the rule. And so if you look at
18 AP600, Westinghouse says that's a modular design.

19 Well, what that means though is that they
20 envision portions of the plant being assembled off-
21 site and those modules brought together and put
22 together on the site forming one complete nuclear
23 reactor plant. Now comes pebblebed. They also refer
24 to that design as modular, but what they mean when
25 they say that is that the overall plant is going to

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1 consist of upwards of ten small nuclear reactors. ~~a~~
2 they refer to those small reactors as modules.

3 CHAIRMAN APOSTOLAKIS: Yeah.

4 MR. WILSON: Well, those are much
5 different definitions. We need to do something to
6 clarify what the Commission is talking about in terms
7 of its authorization to operate. And so this is the
8 first shot at this, we're not done with this. But the
9 goal here is to clarify how the Commission is going to
10 treat modular reactors, given that the industry is
11 using this term in a number of different ways.

12 CHAIRMAN APOSTOLAKIS: But again, maybe
13 I'm missing something, but I don't know why you need
14 the second definition. I mean Westinghouse may be
15 using it, but how does it affect the regulations?

16 MR. WILSON: As I said, we're not done
17 yet. I tend to agree with you, we probably don't. But
18 I'm getting this out here so we can facilitate future
19 discussions and in the proposed rule hopefully get
20 this straightened out.

21 CHAIRMAN APOSTOLAKIS: I mean the first
22 one clearly is meaningful because, you know, they may
23 start with three modules and then add further modules
24 years later. And that makes much more sense.

25 MR. WILSON: And that allows me to make a

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1 point I forgot to make, is this draft ruling, which is
2 a work in progress, this isn't the finished thing.
3 There may be changes in it before we actually come up
4 with the final proposal.

5 CHAIRMAN APOSTOLAKIS: All right.

6 MEMBER SHACK: Anymore comments or
7 questions? I believe we have, NEI would like to say
8 some things about their petitions.

9 CHAIRMAN APOSTOLAKIS: Thank you very
10 much, Mr. Wilson. You handled us well.

11 MR. WILSON: Many years of experience.

12 (Laughter.)

13 MEMBER SHACK: Dealing with grumpy old
14 men, right.

15 (Laughter.)

16 MR. WILSON: The secret is get them
17 fighting among themselves.

18 CHAIRMAN APOSTOLAKIS: That's right.

19 MEMBER KRESS: I am not old.

20 MR. ROSEN: Or grumpy.

21 MEMBER KRESS: Well, grumpy I admit to.

22 (Laughter.)

23 MR. BELL: Thank you. My name is Russell
24 Bell and I am from NEI. Thanks for inviting me to
25 just say a few brief words, especially in the lateness

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1 of the hour and the interest of the committee. Let me
2 just follow up by, we're making a few key points as we
3 provide, continue to provide input to the NRC on the
4 Part 52 rule making.

5 And I'll start by agreeing with Jerry that
6 Part 52, probably is, could be used as is. Yet the
7 plan has been all along to reflect some lessons
8 learned, make some clarifications and some adjustments
9 and corrections characterized.

10 And that's happening. The fact that it
11 can be used as is doesn't mean though that it can't be
12 improved in a more substantive way, or that as long as
13 we're opening the book again and revising it, we
14 shouldn't take advantage of the opportunity to look
15 for ways to enhance the rule.

16 So we've identified a number of changes
17 along the lines that Jerry talked about.
18 Clarifications, corrections. In fact many of the same
19 ones. However, we've identified or we're advocating
20 two additional

21 CHAIRMAN APOSTOLAKIS: -- the front.

22 MR. BELL: The one that says on/off?

23 (Laughter.)

24 MR. ROSEN: When all else fails, try
25 following the procedure.

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1 MR. BELL: This is my only visual aid.
2 Hopefully you got a copy. And there are two main
3 things I want to talk about that are inextricably
4 linked. In addition to the kinds of things, the
5 clarifications, the corrections, we are advocating two
6 proposals that are more substantive. And July 18th it
7 was of this year we submitted two rule making
8 petitions to the NRC.

9 I think that you have those in your
10 packages. And they're aimed at improving the focus
11 and efficiency of the Part 52 process. This is for
12 the early site permit and combined licenses. So now
13 is the time to look for these kinds of things and in
14 fact the Commission admonished in their February 13th,
15 requirements memorandum to look for process
16 efficiencies and we think we've found some.

17 The first would avoid so-called
18 duplicative reviews of valid, existing site or
19 facility information that was previously reviewed and
20 approved by the NRC and subject to a hearing. So here
21 we're thinking about, you've heard that new plants
22 would most likely first be sited at existing
23 facilities. Either existing plants where, well where
24 plants are operating or where plants were perhaps
25 approved to be built, but were never built.

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1 And that makes perfect sense. And
2 intuitively there should be some efficiencies
3 available to do that. This might be taking credit for
4 some of the ology type information that doesn't, that
5 doesn't change very much over, you know, a couple of
6 decades or several years.

7 It might be the fact that if you put a
8 plant at an existing, if you put a new plant at an
9 existing site where plants are running, there are
10 operational programs in place related to emergency
11 planning and radiation protection and all those kinds
12 of things that are up and running. They are
13 established effective programs that would, and then
14 the proposal would be that those would be expanded to
15 encompass the additional units.

16 To accomplish this we've proposed two new
17 sections to the rule numbered 52.16 and 52.8. The
18 other petition seeks to eliminate outdated, frankly,
19 NRC reviews of alternate sites, alternative sources of
20 generation and need for power. These emanate from the
21 National Environmental --

22 CHAIRMAN APOSTOLAKIS: Policy Act.

23 MR. BELL: -- Policy Act, NEPA. Thank
24 you. And, which is carried out for NRC via Part 51
25 regulations. The, this petition that looks to be in

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1 line with the views that the Chairman expressed in a
2 letter to Senator Domenici, also in February, I
3 believe, where he said these matters are more the
4 business of the state and local officials and the
5 marketplace to determine, again, what type of
6 generation to build, where it is needed and whether it
7 is needed.

8 And the NRC really is, these matters are
9 distant from the NRC's mission. So these two are
10 obviously more than a correction, it's more than a
11 clarification. These are substantive enhancements
12 that we'd like to see. In commenting on the Part 52
13 rule making, we're advocating that these, action on
14 these petition, which by the way, the comments were
15 due to today on the petitions.

16 I forwarded them to the NRC earlier today
17 and maybe you already have a copy of our November 8th
18 letter which summarizes the basis and the intent of
19 the, both proposals. We're advocating that the NRC
20 expedite consideration and action on these proposals
21 so that they can get on board with the ongoing Part 52
22 rule making which is now scheduled to, I think the
23 staff schedule is to complete work on that in April,
24 send the paper, the proposed rule to the Commission.

25 We're down to the -- I'll pause for

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1 questions in a moment. Why don't I just finish. On
2 the Part 52 rule making again, I mentioned the
3 schedule is now April. There was a time when the
4 schedule was this past April, for the notice of
5 proposed rule making. And for good reasons we and the
6 NRC agreed that we should take the time now, take more
7 time to consider the range of changes that might be
8 necessary.

9 You don't go and revise a major piece of
10 work like Part 52 very often, so we ought to get it
11 right. But now the rule making has slipped again to
12 April of next year and frankly the cushion we had or
13 the surplus schedule we had is gone.

14 This is the center piece of the regulatory
15 frame work for new plants, so our message is that
16 center piece, that regulatory infrastructure for new
17 plants needs to be in place and we're hoping that
18 there will be no further delay.

19 So the need to expedite the action on the
20 rule making, on the, excuse me, the petitions. We have
21 had a number of interactions on all these matters.
22 The petition issues as well as the lesser
23 clarifications, corrections, these types of things
24 we've had a number of conversations and public
25 meetings with the staff. And I believe the comments

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1 are due on Tuesday, that the staff, as Jerry pointed
2 out, issue draft, publish draft ruling for stakeholder
3 comment. Those comments are due Tuesday and we'll be
4 providing input to the staff next week.

5 At the bottom there it just highlights a
6 couple of things. In terms of the 50.59-like process,
7 I think it's important to preserve the distinction
8 between so-called design basis information versus
9 severe accident-related information which is required
10 by Part 52.

11 Okay, the original certifications include
12 a higher threshold for determining when prior NRC
13 approval is required for severe accident information
14 versus design basis. And that higher threshold is
15 known as a substantial increase threshold. And we'd
16 like to --

17 CHAIRMAN APOSTOLAKIS: Let me understand
18 this, Russ. Are you saying that if, that I can change
19 for severe accidents the way of calculating something?

20 MR. BELL: Yeah.

21 CHAIRMAN APOSTOLAKIS: If I can show first
22 that these would result in a substantial increase in
23 the frequency of occurrence of an accident or all
24 these rules of 50.59, rather than a minimal increase?
25 You are replacing minimal by substantial?

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1 MR. BELL: That's right.

2 CHAIRMAN APOSTOLAKIS: And you're doing
3 that for the accidents, severe accident issues?

4 MR. BELL: Right.

5 CHAIRMAN APOSTOLAKIS: Only?

6 MR. BELL: That's right. And I'll just,
7 just to reiterate --

8 CHAIRMAN APOSTOLAKIS: Okay, just to
9 understand it.

10 MR. BELL: The existing rule has the work
11 substantial increase in there. And while we think
12 it's appropriate to substitute minimal elsewhere in
13 the 50.59-like process, as it applies to professional
14 design basis information, we wouldn't touch this part
15 of it.

16 CHAIRMAN APOSTOLAKIS: So the rule now is
17 being changed when they insert this language, minimal?

18 MR. BELL: Yes.

19 CHAIRMAN APOSTOLAKIS: The existing rule
20 already says substantial. Well, you can't say these
21 things because this is 50.59 thinking that is very
22 recent.

23 MEMBER SHACK: Right, I mean you know in
24 the old one, the Tier 2 change, the design basis was,
25 you know, unresolved safety issue, I guess.

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1 CHAIRMAN APOSTOLAKIS: Unreviewed safety
2 issues.

3 MEMBER SHACK: Unreviewed.

4 CHAIRMAN APOSTOLAKIS: so now you would
5 have two different sets of conditions for a departure
6 from Tier 2?

7 MR. BELL: And there always have been,
8 just again, to reiterate. One of the corrections
9 Jerry highlighted was that to require COL applicants
10 who do not reference a certified design to be subject
11 to the same requirements as design certification
12 applicants for testing and demonstrating performance
13 of innovative safety features.

14 And we're, our strong view is that that's,
15 that should not be, that new requirement should not be
16 included in the notice of proposed rule making that
17 comes out. In fact, the record on Part 52 seems
18 pretty clear to us that the Commission considered
19 whether that type of requirement was appropriate at
20 licensing. They spoke to it in the statements of
21 consideration of the Part 52 rule and said that it, in
22 fact, it should not. So again, we'd like to, like to
23 see no change there.

24 MR. ROSEN: I really don't understand
25 that. Can you help me through that? We set up a

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1 certified design and anybody who says they'll build in
2 accordance with that gets all sorts of relief. But
3 the next guy comes in and says I don't like that
4 certified design, I want to build something else that
5 I kind of worked out in my garage. And it's got
6 highly enriched uranium in it.

7 And that guy wouldn't be subject to the
8 same testing and performance demonstration
9 requirements as design certification applicants
10 because he's not referencing the design, certified
11 design. He can do anything he wants. So I don't
12 understand that.

13 MR. BELL: He would, in terms of
14 requirements for obtaining the license he would have
15 to go through this. He would not be required to
16 demonstrate prior to obtaining the licensing through
17 testing and prototype testing, separate affects
18 testing.

19 The kinds of things that he's, that his
20 innovative design is proposing to do. In the license,
21 presumably, there would be conditions on demonstrating
22 those features through, you know, start up testing.
23 And I think these kinds of things have been done
24 before. In fact, there's existing NRC guidance that
25 says this is the best and appropriate.

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1 MR. ROSEN: And presumably the purpose of
2 this is to encourage innovation? Or what are, it
3 seems --

4 MR. BELL: Yes, in fact the Commission
5 statements, which I don't have in front of me, spoke
6 in terms of the burden that required for instance that
7 prototype testing be complete prior to COL issuance,
8 that would impose a significant burden. But they went
9 on to say, but that's, there are ways around that,
10 including licensing the prototype.

11 And again, demonstrating through start up
12 testing that the innovative safety features are --

13 MR. ROSEN: I'm getting the picture now.
14 This is to permit something like a PBMR, effectively.
15 Because a PBMR is not a certified design.

16 MR. BELL: It's in space.

17 MR. ROSEN: And so it would not be subject
18 to the same testing and performance demonstration
19 requirements.

20 MR. BELL: As a condition of getting,
21 prior to granting the license.

22 MR. ROSEN: This is the door through which
23 the PBMR goes, is what I see. Is that right?

24 MEMBER POWERS: Why are we doing this?

25 MEMBER SIEBER: So you don't have to build

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1 prototypes, the operating plant prototype.

2 MR. ROSEN: Oh, so you don't have to get
3 the designed certified if you're a PBMR. You can just
4 get some other, you know, Part 52 will apply to you,
5 you go through this window if it's put in. Clearly,
6 you get some other arrangement with the Commission to
7 do a prototype of something else, whatever license --

8 MEMBER POWERS: Why would I want to do
9 this?

10 MR. ROSEN: I'm not sure you would.

11 MEMBER POWERS: No, I don't think I want
12 to do this. I mean if the guy can't come in and show
13 me --

14 MR. ROSEN: This is NEI's proposal.

15 MEMBER POWERS: Yeah, I mean, what are we
16 arguing here, that somebody can come in here with some
17 cockamamie scheme for passive heat removal or
18 something like that, and because it's sufficiently
19 cockamamie that nobody can figure out whether it works
20 or not without even building it and try it?

21 MR. BELL: I think the staff would perform
22 its historical function in terms of the design review,
23 and in fact, 50.34 the date of the existing
24 requirements on providing technical information in
25 support of a design that demonstrates adequate ECCS

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1 performance and all these kinds of things.

2 All those requirements would apply and a
3 licensee, like Exelon, an applicant like Exelon or
4 anyone else, would have to provide that type of
5 information. There would still be, of course, the
6 give and take that occurs between the staff and the
7 licensee.

8 MEMBER POWERS: I can see this as a staff
9 stress test on a guy who spent a billion dollars
10 building a reactor and the staff comes along and says,
11 no, you don't get a license. It sounds like a staff
12 stress test to me.

13 MR. BELL: I would just, just to clarify
14 I would say that's not an NEI proposal. I think the
15 Commission consciously thought about this, to their
16 credit, back in 1989, 1992, when these statements were
17 written, and intended the rule to be exactly the way
18 it is. So those are a couple of things that rise
19 above the others in terms of our recommendations that
20 are tabulated in the letter that we'll be sending to
21 the NRC on Tuesday.

22 MR. ROSEN: Now, let me just focus on this
23 NEPA business for a minute, alternatives.

24 MEMBER POWERS: I think one of the things
25 that I recognized is haven't we opted out of NEPA? As

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1 a committee, didn't we opt out of NEPA?

2 MEMBER KRESS: Yeah, we did.

3 MEMBER SIEBER: Yes, we did.

4 MEMBER KRESS: But that doesn't mean that

5 --

6 MEMBER SIEBER: But this is a rule.

7 MR. ROSEN: I'm going to ask a question
8 about, about what you, about your letter. The third
9 bullet or the second bullet on Page 6 of your letter.
10 It says the industry proposal is consistent with NEPA,
11 which requires consideration of alternatives, but does
12 not specifically require the NRC to consider
13 alternative sites, alternative generating sources and
14 the need for power.

15 Although the NRC has historically
16 conducted these reviews, they are not required by
17 NEPA.

18 MR. BELL: Right.

19 MR. ROSEN: So basically you're saying
20 we'll always hear that NRC has been going beyond the
21 burdens of NEPA?

22 MR. BELL: Yes.

23 MR. ROSEN: And NEI is saying here, stop
24 doing that, we suggest you stop doing that. Stop
25 going beyond the burdens of NEPA.

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1 MR. BELL: It's time to reassess that.
2 We're about, hopefully we're on the verge of a
3 renaissance.

4 MR. ROSEN: How will the burdens of NEPA
5 be carried then, since it requires consideration of
6 alternatives. Where will that consideration be, who
7 does it?

8 MR. BELL: Closer to home. By the
9 applicant itself in concert with his state and local
10 governments and communities and the marketplace.

11 MR. ROSEN: Okay, I get it.

12 MR. BELL: Anything else? Thank you.

13 CHAIRMAN APOSTOLAKIS: Yes, Dr. Shack?
14 Back to me?

15 MEMBER SHACK: Back to you.

16 CHAIRMAN APOSTOLAKIS: Thank you very
17 much. We'll recess for 15 minutes.

18 (Whereupon, the foregoing matter went off
19 the record at 5:35 p.m.)
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Name of Proceeding: Advisory Committee on
Reactor Safeguards
487th Meeting

Docket Number: (Not Applicable)

Location: Rockville, Maryland

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.



Pippa Antonio
Official Reporter
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