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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

MEETING OF THE SUBCOMMITTEE ON THERMAL-HYDRAULICS

PHENOMENA

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FRIDAY, MAY 25, 2007

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The Subcommittee convened at 8:30 a.m. in Room T-2B3 of the Headquarters of the Nuclear Regulatory Commission, 11545 Rockville Pike, Rockville, Maryland, Sanjoy Banerjee, Chairman, presiding.

MEMBERS PRESENT:

SANJOY BANERJEE, Chairman

SAID ABDEL-KHALIK

MARIO V. BONACA

THOMAS S. KRESS

GRAHAM B. WALLIS

CONSULTANT PRESENT:

DAVID DIAMOND

STAFF PRESENT:

RALPH CARUSO

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

(4:43 p.m.)

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2
3 ACTING CHAIRMAN KRESS: Before we talk
4 about guidance for the full Committee, do GE or
5 anybody want to make some more -- we're okay. For the
6 GE presentation part of it, is it split up an hour for
7 each, Ralph, or do you know?

8 MR. CARUSO: Right now it's just an hour.
9 Yes, it's an hour for each.

10 ACTING CHAIRMAN KRESS: I think it's
11 important that they give this talk about why they want
12 to go to the MELLLA+. I thought that was very
13 illuminating for the flexibility stuff.

14 And I thought that was -- well, the first
15 thing we want to know is why you are doing this. And
16 that's the reason. So you have to do that. Now --

17 MR. CARUSO: We're in open session, by the
18 way.

19 ACTING CHAIRMAN KRESS: We're in open
20 session, yes. So why it's important to the industry.
21 That's one item.

22 MEMBER BONACA: One thing that is
23 important is just a point that the MELLLA+ just sits
24 on top of a lot of ready approval of a 20 percent
25 power uprate, which was the measured piece. This is

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1 really a means of providing flexibility to the
2 licensee to allow for variation in flow and
3 flexibility on top of that.

4 So it's important that that message be
5 conveyed to the full Committee there. You know, we
6 already had approved --

7 ACTING CHAIRMAN KRESS: The 20.

8 MEMBER BONACA: -- the 20 percent power.

9 ACTING CHAIRMAN KRESS: Right. And I
10 think the staff's approach that looking at the delta,
11 we already approved the 20 percent. And the MELLLA+
12 is not much of a change. I thought that was a good
13 way to approach it. So you might want to keep that
14 part in there.

15 I thought it was very important to give
16 some perspective to this particular full Committee on
17 the risk implications. And the fact that this is such
18 a very low probability with the not density or
19 consequences is really the basis I think for the
20 previous ACRS approval of the melt.

21 And I think it serves as a basis for us to
22 overlook a lot of things that we may not be able to go
23 into depth on the limitations, just the mere fact that
24 this looks like it's very susceptible from a risk
25 standpoint. And I think it's important to bring that

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1 up.

2 The stuff that --

3 MEMBER WALLIS: You mean you want a PRA?

4 ACTING CHAIRMAN KRESS: No, no. I just
5 want the medical PRA. You know, we have already done
6 the frequency. And just the frequency alone is
7 probably enough to convince anybody.

8 MEMBER BONACA: Just communicating the
9 issue of closing of GSI to start with is the same
10 basis for close, accepting these --

11 ACTING CHAIRMAN KRESS: Exactly right,
12 Mario. And the stuff that we heard about, the actual
13 response to plants, to the instability problem and
14 unmitigated and the mitigated, I think that's
15 important to bring that out and what it is that is
16 being done to address that. I hadn't planned
17 mitigated. I think that's important.

18 Well, with all of these limitations,
19 that's the one that bothers me, how to deal with
20 those. I don't think we can go over all of them. We
21 are going to get bogged down into the details of them.
22 I think two or three of them you can pick out that you
23 think are really the important ones and you somehow
24 give us a list of all of them?

25 Does anybody else have any suggestions,

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1 any thoughts on what --

2 MEMBER WALLIS: Well, I think you need a
3 high-level view of things.

4 ACTING CHAIRMAN KRESS: Oh, I think
5 high-level view on this.

6 MEMBER WALLIS: He should not only say,
7 "This is why we want it," but they ought to say why it
8 is acceptable.

9 ACTING CHAIRMAN KRESS: Yes.

10 MEMBER WALLIS: And I think what that
11 means is you take a high-level view. You say, "We are
12 going to extend into this region. When we go into
13 this region, here are the new or enhanced safety
14 implications," if any. And if there are any, you have
15 got to say what they are.

16 If the LOCA risk is high or the PCT is
17 increased, there is a greater risk of ATWS instability
18 or something, which has some safety implication. If
19 it does, you have to say that.

20 If there are no enhanced safety
21 implications from going into this region, then you
22 have to justify that, say because the power level
23 hasn't increased and because we are at the same
24 pressure and we have got the same in the case of a
25 LOCA, we haven't really increased the inventory of

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1 feed and so on and explain why things are still okay.

2 As a high level, I think you can do that
3 because we are here to advise on safety. And the real
4 question here is, can we tell the Commission, you can
5 go and let the people go into this purple region
6 without there being some additional safety problem or
7 risk? Risk is to me sort of a special way of
8 describing safety, but safety is a broader --

9 ACTING CHAIRMAN KRESS: It's more than
10 just the risk. The risk is the reason we can say it's
11 acceptable, but the regulations that they're saying
12 have to be met with some margin maybe or some changes,
13 they're important because there might not be a risk
14 issue from the standpoint of we want to blow stuff out
15 in the containment and hurt people, but they are there
16 to limit challenges and to limit small accidents and
17 to cover things that you don't want to happen, not
18 because they are going to kill everybody, because they
19 are important to the whole thing.

20 So you don't want to stick strictly to
21 risk. You want to deal with these issues you're
22 talking about.

23 MEMBER WALLIS: You are going to look at
24 safety and then you are going to look at what does
25 this do to your ability to meet the regulations.

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1 ACTING CHAIRMAN KRESS: Yes, that's it.

2 MEMBER WALLIS: And you are going to say
3 that, "We are still meeting all of these fuel
4 performance criteria. We are still meeting" this, all
5 these MPLHGRs and all of these other things. You
6 know, nothing has really changed there. There are no
7 new challenges to the fuel and to the criteria.

8 And I think you can say all of that pretty
9 quickly. And then if anyone has any question about
10 specifics, you can respond to those. Really, the
11 staff has to do the same thing. They have to assure
12 us or the full Committee that there are no significant
13 new safety implications, if there are any that they
14 have done something appropriate by adding some
15 requirement or something and that they have to sort of
16 I think say that in extending to this region, there
17 are some questions about going to higher voids, what
18 this does in terms of are the correlations still
19 valid, what does this do to -- does this change any of
20 the safety measures or so on from a high level?

21 MEMBER BONACA: One thing that I must say
22 that gave me comfort here was I thought that the
23 review of the staff was very thorough.

24 ACTING CHAIRMAN KRESS: Oh, yes. I
25 thought it was very thorough.

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1 MEMBER BONACA: And I don't want to list
2 all the limitations they are imposing on that, but
3 that shows to what extent they have gone into the
4 details of the specifics and identified the
5 requirements.

6 So, you know, maybe in the presentation,
7 you could say that we have identified many areas where
8 we have requested imposed certain limitations, et
9 cetera, without listing them in detail with the
10 exception of the most significant ones, which are the
11 penalties, you know, that apply there. But I think
12 that that conveys the thoroughness of the review.

13 MEMBER ABDEL-KHALIK: I assume that the
14 two-hour presentation to the full Committee sort of
15 would encompass both the MELLLA+ and the methods. And
16 from my perspective, it would be a good idea not to
17 have an equally sort of weighted presentation but
18 weigh the presentation more towards the MELLLA+ and
19 then provide any input to the methods changes that
20 would be required or limitations of the methods in
21 support of your presentation on MELLLA+.

22 ACTING CHAIRMAN KRESS: That's a good
23 suggestion.

24 MEMBER WALLIS: I think you have to give
25 some assurance of anyone who has read the SE that, in

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1 spite of all your sort of critiques of what GE has
2 done, which I think you have picked up a lot of
3 things, which are important, but when you read it --
4 I also read it.

5 I got the impression that, well, they have
6 got all of these things that they are concerned about.
7 Why are they then saying everything is okay? And
8 somehow you have got to put across why everything is
9 okay if it is. If it isn't, then we've got to put
10 that across, too. Apparently you think it is okay.

11 ACTING CHAIRMAN KRESS: With the
12 limitations.

13 MEMBER WALLIS: Right.

14 MEMBER BONACA: Now, the one thing that I
15 hear from GE is the first EPU with the MELLLA+ that
16 comes, what will it look like? I am just curious. I
17 mean, that probably shouldn't be part of the
18 limitation, but it will have to include an LTR 1, an
19 LTR 2, I guess, description of the modifications of
20 the plant to meet that. And the MELLLA+ is an add-on.

21 Do you have anything in the package you
22 are going to provide or --

23 MS. TRAN: We intended to apply this
24 MELLLA+ after the -- oh, this is P. T. Tran --
25 customer at the plant has been licensed with EPU. So

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1 this will be an add-on just like you see here.

2 MEMBER BONACA: So it's a simple step.

3 MS. TRAN: Yes, like, for example, TVA
4 customers here, the TVA unit I start up. And after
5 they get their 120 percent EPU, after that, we will
6 come with the amount of less applications.

7 MEMBER BONACA: Okay.

8 MS. TRAN: So it's not going to be one
9 application for both EPU MELLLA+. You will see --

10 MEMBER BONACA: No. I understand.

11 MS. TRAN: -- staff applications and --

12 MEMBER BONACA: Okay. Thank you.

13 MEMBER WALLIS: I think you have to have
14 something, both of you have to have something, which
15 is reassuring to the public. And we went to Vermont
16 Yankee about our uprate and so on. It's quite
17 reasonable.

18 And I know there are some maybe who are
19 more extreme, but some quite reasonable people say,
20 "How can you take this old reactor, you've been
21 operating at this power for so long, and raise it?"
22 It's hard. There's got to be some reason why it's
23 okay.

24 Well, do you have some things that you can
25 say which are appropriate in that level for the public

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1 and why it's okay to go into this region? And the
2 reason is it doesn't raise any new safety issues and
3 so on. But you say those things.

4 ACTING CHAIRMAN KRESS: I think we're
5 there. Does that sound like we can fit all of that
6 into two hours?

7 MS. ABDULLAHI: One hour?

8 ACTING CHAIRMAN KRESS: No. It's two
9 hours total.

10 MEMBER WALLIS: It will be both, for both
11 of you.

12 ACTING CHAIRMAN KRESS: And, of course,
13 you're only supposed to --

14 MEMBER WALLIS: You're going to have to
15 compress a major ten hours into one.

16 ACTING CHAIRMAN KRESS: Okay. I'm about
17 ready --

18 MEMBER ABDEL-KHALIK: I really would like
19 to compliment the staff --

20 ACTING CHAIRMAN KRESS: Yes.

21 MEMBER ABDEL-KHALIK: -- and GE on their
22 really thorough presentations and the thorough review
23 that you have made. You have done a good job.

24 ACTING CHAIRMAN KRESS: Yes. I think I
25 would second that.

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1 MEMBER BONACA: I was impressed by the
2 work presented.

3 MEMBER WALLIS: I have something to say
4 about GE, too. GE I think started yesterday not very
5 well, as Banerjee said, I mean.

6 ACTING CHAIRMAN KRESS: But they
7 recovered.

8 MEMBER WALLIS: Then it turned out that
9 when you put someone like Jens Andersen up there and
10 he showed that yes, there was more data and, yes, they
11 had really thought about lots of these technical
12 issues carefully and so on, that was very reassuring
13 and some of your stuff, too.

14 But at the beginning, it looked like,
15 well, you know, this is just superficial, it's just a
16 line, there's no justification for it, there's no
17 indication of why it's very --

18 ACTING CHAIRMAN KRESS: I think the reason
19 for that is they were trying to focus on the reason we
20 need this.

21 MEMBER WALLIS: You just say, "You told us
22 you like to operate in this region for flexibility."

23 ACTING CHAIRMAN KRESS: Yes.

24 MEMBER WALLIS: So stop. And then --

25 ACTING CHAIRMAN KRESS: Yes. But those

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1 are words that we didn't quite understand.

2 MEMBER WALLIS: Don't quite understand all
3 the time. Right.

4 ACTING CHAIRMAN KRESS: We don't know what
5 you mean by "flexibility."

6 Anyway, I'm about to bang the gavel.

7 MEMBER WALLIS: Go ahead.

8 ACTING CHAIRMAN KRESS: I now adjourn this
9 meeting.

10 (Whereupon, the foregoing matter was
11 concluded at 4:57 p.m.)

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