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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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510TH FULL COMMITTEE MEETING
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
(ACRS)

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FRIDAY,

MARCH 5, 2004

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ROCKVILLE, MARYLAND

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The Full Committee met at the Nuclear
Regulatory Commission, Two White Flint North, Room
T2B3, 11545 Rockville Pike, at 9:30 a.m., Mario V.
Bonaca, Chairman, presiding.

COMMITTEE MEMBERS:

- MARIO V. BONACA Chairman, ACRS
- GRAHAM B. WALLIS Vice-Chairman, ACRS
- STEPHEN L. ROSEN At-Large, ACRS
- GEORGE E. APOSTOLAKIS Member, ACRS
- F. PETER FORD Member, ACRS
- THOMAS S. KRESS Member, ACRS
- GRAHAM L. LEITCH Member, ACRS
- DANA POWERS Member, ACRS

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1 COMMITTEE MEMBERS: (cont.)
2 VICTOR R. RANSOM Member, ACRS
3 MICHAEL T. RYAN Member, ACNW
4 WILLIAM J. SHACK Member, ACRS
5 JOHN D. SIEBER Member, ACRS
6 RUTH R. WEINER Member, ACNW

7

8 ACRS STAFF PRESENT:

9 ERIC BENNOR

10 SUZANNE BLACK

11 MARY DROUIN

12 CHRIS GRIMES

13 ALAN LEVIN

14 CARL J. PAPERIELLO

15 ANTHONY McMURTRAY

16 LARRY ROSSBACH

17 THOMAS SCARBROUGH

18 ISABELLE SCHOENFIELD

19 JACK STROSNIDER

20 DAVID TERAQ

21 MICHAEL WATERS

22 DEREK WIDMAYER

23

24

25

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3 ACRS Chairman

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5 Several Other Countries 5

6 Remarks by the Subcommittee Chairman

7 Discussion of the differences in regulatory

8 approaches between U.S. and several other

9 countries

10 Adjourn 74

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P R O C E E D I N G S

(9:31:56 a.m.)

1
2
3 CHAIRMAN BONACA: Are we all set with the
4 recording? Good. With that then good morning. We
5 want to welcome you, Dr. Travers and your staff, come
6 here to meet with us and give us a number of
7 presentations on issues of common interest for the
8 Committee, and also for the ACNW that is represented
9 here. And this meeting is very important for us,
10 because I think it establishes better communications,
11 and it helps us go forward for the next year of work
12 that we have.

13 Now I understand that we have a number of
14 presentations. In fact, I see we have a number of
15 topics in front of us that are going to be addressed.
16 I will let you go to the presentations first. What I
17 would like to suggest here is that we let the
18 presenters go through their slides, and just please
19 ask questions only for clarification purposes, and
20 then I think we should ask questions at the end of
21 each one of the presentations, and that would make it
22 easier for the presenters to go ahead.

23 MEMBER APOSTOLAKIS: So this would be a
24 very unusual ACRS meeting.

25 CHAIRMAN BONACA: Well, just as a suggestion.

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1 MEMBER APOSTOLAKIS: You will not see how
2 we operate.

3 DR. TRAVERS: Well, if I might open and
4 respond, please, to that, Mr. Chairman - thank you
5 very much. We're happy to be here. You can probably
6 tell, we brought the first team of senior managers.
7 Yes, we have presentations, but we also look forward
8 to the dialogue we hope will ensue.

9 As I'm calling you Mr. Chairman, I'm
10 thinking about my experience yesterday afternoon
11 before the Senate. The Chairman was Lamar Alexander,
12 and there was a discussion of topics related to the
13 potential for new reactor licensing in this country.
14 Of course, my role at that hearing was a very small
15 one compared to some of the industry spokespeople who
16 were there, but we certainly had an opportunity to
17 focus on the role of the NRC. And of course, ACRS has
18 a vital role in that, as well.

19 We are prepared to make a number of
20 presentations. I want to say at the outset though
21 that we continue to be appreciative of the support,
22 direction, advice from the ACRS. Much of your role is
23 statutorily mandated, but in addition to that, we have
24 the opportunity for a lot of dialogue with the
25 Committee, and we appreciate that opportunity.

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1 We thought it would be useful, if we
2 might, to touch on a few areas where we think there
3 has been some particular success from our perspective
4 on some of the dialogue that we've been having over
5 the past year or so, and to do that, even though
6 they're sitting in the back row here, I've asked that
7 the deputies address a few of those, and we just
8 thought we'd touch on a couple of those, and then jump
9 into the presentations. So I'll start with Carl
10 Paperiello, who wanted to note just a few quick items.

11 MR. PAPERIELLO: Yes, I just want to touch
12 on something that I was involved in in the past year,
13 that I made use of a report issued by the ACNW, and
14 that dealt with Sandia Research on the effects of
15 consequences of aircraft crashes into drycast. Some
16 of the results I thought were awfully high, jarring,
17 in fact. And when reviewing a report on your review
18 of the severe accidents on transportation canisters,
19 you questioned certain parts of the analysis.

20 Well, when I pursued this issue in-depth,
21 I found out that Sandia used the same methodology that
22 you had identified as flawed in looking at the
23 consequences of aircraft crashes. Well, after
24 pursuing it long enough and complaining to them long
25 enough, they have now changed. And so it was sort of

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1 a -- it was your report that made me - did they do the
2 same thing over here that they had done over here?
3 That was very helpful.

4 DR. TRAVERS: Okay. Sam, did you want to
5 touch on one or two?

6 MR. COLLINS: Yes. Thanks, Bill. Good
7 morning. I want to thank you for the opportunity, and
8 I believe this may be the first time that you've had
9 the opportunity to listen to Jim Dyer, who is the new
10 Office Director of the Office of Nuclear Reactor
11 Regulation, and Jim knows everything that I wasn't
12 able to answer in these previous meetings, so I'd like
13 to go back over some of that old material if Jim is
14 available for that.

15 The six topics that we have today, I
16 believe are representative of the broad scope of
17 challenges for the Office of Nuclear Reactor
18 Regulation, including risk-informed initiatives, those
19 that are defining in the space of rulemaking, as well
20 as continuing challenges with application, emergent
21 technical issues are always on our plate and
22 continually changing. New reactors is developing, and
23 as you know, there's a broad scope of reviews and
24 technologies in those areas, as well as the ongoing
25 operational challenges that require synergism between

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1 ourselves, research, and those in the field, such as
2 sump performance and power uprates themselves.

3 An important aspect finally is the
4 appreciation for the independence of the ACRS. And as
5 you know, Jim's office and the duties of the EDO and
6 the Deputy EDO in this position are very closely tied
7 with stakeholders. And in our performance goals of
8 openness and public confidence, the ability of the
9 ACRS to provide an independent view in those technical
10 insights, and challenge the Staff on our decisions and
11 our decision-making process is very important to the
12 Commission, as well as to the Staff. Thank you.

13 DR. TRAVERS: Bill.

14 MR. KANE: Okay. I'll just be brief here.
15 I have, if you noted by this long title,
16 responsibility for Homeland Protection and
17 Preparedness, which includes the security of plants as
18 well as emergency planning, but also overall
19 responsibility for the vulnerability assessments, and
20 mitigative strategies that cut across really all that
21 we're -- most, if not all, of the major offices.

22 The Commission direction in their SRM in
23 October, of course, established a principal role for
24 ACRS in this area in terms of the review of
25 vulnerability assessments and mitigative strategies,

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1 and not in the day-to-day activities that go on in the
2 Office of Nuclear Security and Incident Response
3 relative to physical security, threat assessment, and
4 force-on-force assessment. And so that has sort of
5 divided your role up, but we certainly do appreciate
6 the role that you've played in the area of
7 vulnerability assessments.

8 We've had interactions with the -- NSIR
9 has had interactions with ACRS. We've briefed you on
10 formation of the office, and have provided status
11 updates, most recently in April and September of this
12 past year, and we'll continue to do that to keep you
13 informed of really the total scope of what NSIR is
14 doing. The most recent meeting, of course, has been
15 on March 3rd on vulnerability assessments and
16 mitigative strategies.

17 We look forward to continued interactions
18 with ACRS consistent with the direction provided by
19 the Commission. We value your input, judgments, your
20 guidance, however you want to characterize it, but
21 it's an important component in making us more
22 effective as an organization. Thank you.

23 DR. TRAVERS: Thanks a lot, Bill. I've
24 been trying to put in a plug for something, and I'll
25 do it at the front end here; and that is, the fact

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1 that we've been sort of retrospectively looking at
2 some of what occurred 25 years ago at Three Mile
3 Island in the context of everything we've been doing
4 since then, and the improvements that have been made,
5 and the challenge to not be complacent about where we
6 are today and what we're doing. And in that context,
7 we had a meeting this week with the Commission's
8 involvement, with my involvement, with the historian,
9 Sam Walker's involvement to try to lay a perspective
10 out for the NRC Staff, some of whom weren't even born
11 at the time that accident took place. It's a sort of
12 scary thought but that's true.

13 And upcoming next week at the RIC, and
14 this is the plug, I've managed to get Harold Denton to
15 come, Governor Thornberg, at least then Governor
16 Thornberg, former Attorney General of the United
17 States since then, to come along with Chairman Diaz
18 and Oliver Kingsley, the head of Exelon, the largest
19 nuclear power plant operating in the State to serve on
20 a panel during the RIC to talk about TMI-2, not just
21 the accident, but importantly, what's been going on
22 since that time. So with that plug in place, I'll
23 turn it to Jack for the presentations that we've
24 prepared for you today.

25 MR. STROSNIDER: Good morning. Again, I'd

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1 like to thank you for your time this morning, and also
2 I'd like to reiterate the value we place on our
3 interactions with you. I think they certainly help us
4 in maintaining an appropriate level of quality, and we
5 get insights that help us in implementing our work, so
6 we really appreciate that.

7 If I could have the next viewgraph. I
8 guess the purpose of the presentation this morning is
9 I wanted to call to your attention some high priority
10 topics that will be coming up in the near future where
11 we have some scheduled interactions with the
12 Committees. I'll go over their's quickly, and then
13 I'll briefly talk about another list of activities
14 that will be coming up in the next 18 months or so,
15 but we still need to work out some schedules and
16 things on those.

17 So the four high priority topics I was
18 going to address are work we're doing in the area of
19 spent fuel pool risk, materials research, more robust
20 materials research program, non-light-water reactor
21 issues, and advanced reactor licensing framework. So
22 if I could have the next viewgraph.

23 The first subject on spent fuel pool risk
24 - I want to go back to one of the agency strategic
25 performance goals related to efficiency,

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1 effectiveness, realism and timeliness, and realism is
2 a particularly important aspect in the role of
3 research and our ability to provide the models, and
4 data, and the ability to do realistic analysis. And
5 this work is a good example of that.

6 The focus has been on providing more
7 realistic models for accidents in spent fuel pools,
8 and that includes things such as improved monitoring
9 of radiant heat transfer, use of computational fluid
10 dynamics to improve the heat transfer calculations,
11 and development of data on cladding oxidation rates in
12 the temperature ranges of interest. So this work has
13 been contributing to identifying mitigation strategies
14 in the security works that we're doing, and I think it
15 also will have value in some of the non-security areas
16 that we work in.

17 Final results will be presented to ACRS in
18 September of this year, and one of the things I wanted
19 to mention here too is that it's our practice with
20 this sort of work to perform an independent peer
21 review, and we're planning on doing that. We haven't
22 figured out exactly how to organize that yet, but part
23 of the discussion that we'll want to have with ACRS is
24 what their role might be in that sort of peer review
25 activity.

1 If I could have the next viewgraph - the
2 second topic I wanted to talk about is material
3 research program. And last year the Commission asked
4 the Staff to develop options for a more robust
5 materials research program to support NMSS and other
6 agency activities. And we did provide options on how
7 to do that to the Commission last month, the paper we
8 sent up there.

9 The areas that we're discussing in that
10 paper for possible enhancement include more in-depth
11 work to independently assess and ensure the robustness
12 of the technical basis for international radiation
13 standards and guidelines, a number of which have come
14 out, and will be coming out in the next year or so.
15 Consideration of new biophysical models developed by
16 the international community, and potential
17 modifications to our health physics models and tools
18 that we use for evaluating that area. And the need to
19 update existing computer codes to more modern and
20 efficient operating systems. And also, the use of
21 risk insights to help inform material-related
22 activities.

23 Those are some of the themes that are
24 discussed in the paper that we sent up to the
25 Commission with some options on how we might go about

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1 that. And our plan is to meet with ACNW, probably be
2 in the fall of this year after we get some Commission
3 guidance and discuss how to go forward in this area.
4 Next viewgraph.

5 CHAIRMAN BONACA: Tell us when it's time
6 for questions. I think this whole presentation you
7 have on material research program. Right?

8 MR. STROSNIDER: I'm sorry, Dr. Bonaca?

9 CHAIRMAN BONACA: This is -- tell us when
10 you're ready for questions.

11 MR. STROSNIDER: Okay.

12 DR. TRAVERS: I think at your pleasure,
13 we're happy to address questions as they come up.

14 MR. STROSNIDER: I was going to go through
15 all the subjects, but if you want to stop and ask
16 questions at this point, we can --

17 CHAIRMAN BONACA: No, I just wanted to
18 make sure the members who want to ask questions at the
19 end of each topic, they go ahead and do that.

20 MEMBER FORD: Jack, you didn't mention in
21 your list the plans for proactive materials
22 degradation assessment.

23 MR. STROSNIDER: Right. And that's on the
24 list that I mentioned toward the end of this of some
25 other --

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1 MEMBER FORD: Oh, you'll be coming to
2 that.

3 MR. STROSNIDER: Yes, I will get to that.

4 CHAIRMAN BONACA: All right. I thought
5 you were already covering all the ground, and so
6 that's why I interjected that. Okay.

7 MR. STROSNIDER: Actually, I was, but slow
8 me down if I go too fast. On the non-light-water
9 reactor issues, a number of technical and policy
10 issues related to non-LWR reactors is looking at the
11 potential for new reactor technology in the United
12 States, and so there's a number of issues that have
13 been identified. They're listed there on the slide,
14 actually.

15 The Staff has met several times with ACRS
16 to discuss these issues, and the Committee insights
17 have been very helpful. Our plan is to meet with ACRS
18 again in April to get any additional input on these
19 issues. We've had some workshops, public meetings,
20 and we're developing the paper to go to the
21 Commission, which would go up at the end of April, so
22 we'd like to get ACRS input before we send that up.

23 And the other thing I was going to mention
24 with regard to these issues is that they will be
25 integrated into the advanced reactor licensing

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1 framework which is the subject of the next slide that
2 I'm going to talk from.

3 MEMBER KRESS: Now the advanced licensing
4 framework, I'm not jumping ahead - I'm relating it to
5 this slide - has inherent in it things about CDF and
6 LERF. Do you have plans to redefine what those are
7 for some of these non-LWR-type plants?

8 MR. STROSNIDER: Well, I think the answer
9 is yes, and that's part of the challenge of doing
10 this, is recognizing the different technologies that
11 you have to have a measure that makes sense in terms
12 of that technology. And also, the desire to have the
13 technology neutral framework such that we don't have
14 a set of -- a framework that's directed at specific
15 designs, but rather could be applied to a range of
16 designs. So the simple answer is yes, but it's not a
17 simple thing to do, but it is the intent.

18 The next viewgraph, the advanced reactor
19 licensing framework, and like I said, this was a lead-
20 in to this topic, actually. The goal is to develop a
21 technology neutral risk-informed licensing framework
22 for future reactors as we just discussed. When you
23 look at risk-informed, we will need to look at some
24 measures, such as CDF and LERF, but they may be
25 different depending upon the technology and trying to

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1 make it technology neutral.

2 Staff has been briefing ACRS on this as we
3 proceed with the development, and I think we've had
4 some very good feedback from those discussions,
5 including our last briefing in November.

6 As indicated in the slide, our planned
7 interactions with the Committee including a
8 Subcommittee meeting in June to discuss technical
9 issues, Subcommittee and Full Committee briefings in
10 November, including a presentation of the final draft
11 framework, which will go out then for public comment,
12 and we will be requesting a letter on that draft
13 framework at that time. And then coming probably the
14 middle of next year or so, coming back to ACRS after
15 we've received the public comments and to talk about
16 how we would address those and look at the final
17 proposed framework, so that's the schedule we're on
18 for that.

19 The next viewgraph, this is a list of
20 subjects that we know we're going to be working in the
21 next 12 to 18 months. We haven't identified specific
22 schedules that I can give you today, but I wanted to
23 make sure that you knew they would be coming, and they
24 include the proactive materials degradation program,
25 which is consistent with I think everybody's look at

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1 materials. Proactive materials degradation at this
2 point is trying to be more proactive so that we can
3 have more efficient and effective solutions when
4 problems come up, and factor that into --

5 MEMBER FORD: Now you mentioned the time,
6 you said ideas for one or two years. What's your long
7 term vision? What do you think is a kind of
8 deliverable in say four years time?

9 MR. SEGALA: We're working on that program
10 now, so I don't have the specific answers. But I
11 think the intent is we're going to be doing some sort
12 of evaluations, getting experts together to try to
13 look at what things we need to anticipate down the
14 road. I think one of the challenges we have from a
15 research point of view is we want to use the
16 laboratory as sort of the crystal ball if you will,
17 which when you know some of the challenges in terms of
18 doing accelerated corrosion testing and that sort of
19 thing, so we need to see how we can design that
20 program to provide us those insights.

21 The other part of the challenge that comes
22 up there is, as we start looking at some of the core
23 resistant materials, that sort of thing, the testing
24 can be even longer, it can more complex considering
25 the sort of things you're measuring, but we want to

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1 look at those areas. And we're developing that
2 program now, and we'll have to come back to you and --

3 MEMBER FORD: Now, obviously, this is
4 spanning a wide range of arts, technologies to come up
5 with this. And, therefore, you're going to have to
6 interact with universities, the licensees, reactor
7 operations, designers. Are there any pros and cons
8 that go into that decision, having to work with these
9 varied people all over the world?

10 MR. SEGALA: Well, I think that's a
11 benefit clearly.

12 MEMBER FORD: There's many pros, yes.
13 What about the cons?

14 MR. SEGALA: Well, frankly from my
15 perspective, benefits are what come to mind. I think
16 we have to recognize that doing this kind of work does
17 take resources, and to the extent that we can leverage
18 those resources both in terms of dollars, but also in
19 terms of the expertise that's available, that's good.

20 We always have to bear in mind our
21 independence as a regulator, but we do have mechanisms
22 in place where we can share in experimental programs
23 up to the point of developing data. Our
24 interpretation of the data and our application in the
25 regulatory framework, of course, is where our

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1 independent role comes in, but there's big benefits,
2 I think, in terms of sharing those costs. Also,
3 sharing people's experience, looking at it from an
4 operating experience point of view, and so I think
5 primarily what I see is benefits to those sort of
6 interactions. And the industry has an effort underway
7 of the same title in terms of proactive -- approaching
8 this issue proactively, and they are putting more
9 resources into it also.

10 MEMBER KRESS: On your list of significant
11 topics, I'm a little surprised not to see sump screen
12 blockage up there. Is that because you feel like it's
13 so close to resolution and not much more is needed?

14 MR. SEGALA: No. It's an area where I'm
15 sure there will be additional discussions. We're
16 supporting NRR in that activity, and again, you're
17 right. That's an area where we're going to need some
18 discussions, I think because aside from the regulatory
19 aspect - I mean, there are issues that we are looking
20 at in terms of some of the chemical effects and some
21 of those testing. And we'll certainly be interested
22 in the Committee's views on that. In fact, the
23 Committee identified some of those issues in the past.
24 We appreciate that.

25 VICE-CHAIRMAN WALLIS: I notice this is

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1 also part of Jim Dyer's presentation. But since we're
2 on the subject, we wrote a letter last fall when we
3 reviewed the reg guide on sump screen blockage, and we
4 got a reply. And our interest in this topic and in
5 the matters in that reply induced us to write another
6 letter saying we want to discuss this some more, and
7 so you will get a letter from us saying we want to
8 discuss this, just to let you know. I think at this
9 level we don't want to go into details, but letting
10 you know that we have this interest. We want to get
11 going on further discussions with you and the Staff
12 about this matter.

13 MR. SEGALA: Thank you for the heads-up.
14 So, I mean, you can see the list up there. There's
15 one thing that didn't make it onto the list that I
16 wanted to bring up, and that is the initiative we have
17 in research on quality, the quality initiative, which
18 when you move into a performance-based framework, one
19 of the most difficult things to really get performance
20 measures on is quality. And I know that Mike
21 Mayfield, who's been leading an initiative within
22 research to address that issue has had some
23 discussions with ACRS on how we might go about that.

24 MEMBER APOSTOLAKIS: Excuse me, Jack.
25 Quality is used in -- you're not talking about PRA

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1 quality. You're talking about quality of research
2 programs.

3 MR. SEGALA: Talking about quality of
4 research products across the board, which again is
5 something we need to measure because want quality in
6 the products, and also as part of a performance-based
7 management system, we want to develop some measures
8 there. We've been out looking at how other research
9 organizations have done this, looking at the
10 literature. And I know there's been some discussions
11 with the Committee, and that ACRS I think played a
12 role in that and we appreciate that support as we move
13 forward with that initiative. So those are things I
14 had prepared to talk about. I guess I'd ask if there
15 are any questions before we go on.

16 CHAIRMAN BONACA: One question I have is,
17 we were presented some time ago, maybe a year ago,
18 with an initiative to improve coherence of regulation,
19 and we haven't seen any additional presentation of
20 that. I wonder where the program is.

21 MEMBER KRESS: Isn't that intimately
22 related with the framework on advance reactor and
23 neutral --

24 CHAIRMAN BONACA: Is it? I thought it was
25 broader than that. I thought it was involving also

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1 some issues with regulation. I mean, I know we have
2 been debating, for example, the issues that come out
3 of Option 2, when we get to frameworks really that are
4 being utilized, and there isn't coherence at times.
5 And that -- I thought maybe they would be under that
6 kind of umbrella.

7 DR. TRAVERS: I think we may have to get
8 back to you on that, unless someone can speak to it.
9 We certainly will --

10 MR. SEGALA: I suggest we get back. There
11 are activities underway within NRR and research.
12 We're working together on that, and I think I'll make
13 a note that we need to get back to you and talk about
14 what we're doing in that area.

15 And certainly, when we look at putting
16 together a new framework, we would want it to be
17 coherent and consistent. But I think in terms of what
18 we're doing with existing regulations, and existing
19 initiatives, we could come back to you with more
20 information on that.

21 CHAIRMAN BONACA: Thank you.

22 DR. TRAVERS: Thanks, Jerry. Chairman
23 Bonaca, if you agree, we'll turn to Marty Virgilio,
24 who is going to talk about NMSS and they're largely
25 focused on ACNW, but some interactions with ACRS, as

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1 well.

2 CHAIRMAN BONACA: Okay.

3 MR. VIRGILIO: Thank you, Bill, and good
4 morning. Just to pick up on Bill's point, if I look
5 back at my personal career, the first 20 years I was
6 working primarily with the ACRS starting with fire
7 protection, plant systems and reactor systems. Now
8 I've had the opportunity for the last five years to
9 enjoy working with the ACNW, so this is a good
10 opportunity for me, and I really appreciate being
11 here.

12 Over the last several weeks, I look back
13 and we've had several, I think, very productive
14 meetings to try to set the framework for how we're
15 going to proceed and what agenda items that we're
16 going to be dealing with over the next several months.
17 And I just want to walk through a few of those issues.

18 Slide 2 picks up on some of those high
19 level waste, decommissioning, transportation, and some
20 of the work we did in the risk-informed programs in
21 NMSS today. If we go to Slide 3, I don't want to
22 spend a lot of time on process issues, but I look back
23 to the meetings that we've had with the Committee at
24 the end of February, and I think what we highlighted
25 at those meetings was the value of the advice and

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1 support that we've had over the last several years
2 with respect to the high level waste depository. The
3 last several years over risk-informing our programs,
4 and I know that involves a joint subcommittee, so
5 we've enjoyed not only having the feedback from the
6 ACNW, but also some of the ACRS members, as well,
7 helping us in that area.

8 I think from our perspective, it's really
9 important to have an opportunity to plan and be
10 choiceful in the products and projects that we work
11 on. Yesterday in the context of -- we had a
12 Commission meeting yesterday, and in the context of
13 discussing one of the issues, the package performance
14 study, the chairman just sort of said well, what about
15 the ACNW? So he gave me a platform to talk about that
16 issue, but also gave me a platform to talk about what
17 we were trying to do in terms of put a little bit more
18 structure in the program, and a little bit more
19 predictability in the topics that we're going to be
20 working on over the next six months to two years,
21 which I think everybody really needs to have at this
22 point. Forecasting is really important to us to make
23 sure that we do have predictability as we move forward
24 in the future.

25 The other thing that we talked about is

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1 trying to make sure that when we look at the agenda
2 topics, we look at them from an arena perspective.
3 Jack in his presentation mentioned the fact that he
4 just put forward a paper to the Commission that talks
5 about the vision, and some of the work that research
6 is going to be doing to support us in terms of dose,
7 protecting the public, and some of the other issues
8 that are coming up, being driven both nationally and
9 internationally. And my vision around this is that as
10 Jack comes forward with his presentations, we're there
11 with him, so it's a joint presentation.

12 Other areas that I can look forward to is,
13 we've got national academy studies. WE've got other
14 areas where we could come forward as a group,
15 research, NMSS together and brief the ACNW and work
16 with them.

17 We've also been dealing with an issue that
18 sort of frustrated us all around pre-decisional
19 information, and we're trying to work forward on that,
20 because there is information that we would like to
21 share, but I think the way some of the rules have been
22 constructed, we haven't been able to have open
23 discussions around some pre-decisional information.
24 We're working forward to resolve that issue. John
25 Larkins has done an awful lot to help us in that area.

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1 So now what I'd like to do on Slide 4 is
2 actually go into some of the specific issues that
3 we're working on. And I mentioned risk-informing our
4 programs. We have been briefing the ACNW and worked
5 with a subcommittee on what we're doing. We've
6 developed a risk-baseline report. We presented it to
7 the ACNW last week. It's a document that continues to
8 evolve and will help us risk-inform our activities in
9 the future.

10 Risk-informing the Yucca Mountain Program
11 from what we do in the technical work, all the way out
12 to the inspection program activities is another area
13 where using our total system assessment and other
14 tools that we've developed, we've been able to at
15 least define at a high, medium, and low priority where
16 we do believe we need to focus our resources and focus
17 our attention.

18 The inspection plan and program is just
19 one area where if you look forward to the next six
20 months where we'll be engaging the ACNW, and
21 requesting their critical review of our program, and
22 look forward to those interactions.

23 Igneous activity - if I think about the
24 Yucca Mountain Program and our prelicensing
25 interactions today, that's probably one of the most

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1 challenging. We have very diverse opinions. I would
2 say that when I look at our positions and DOE's
3 positions, we're not aligned. We're looking very
4 closely at the assumptions, the methods, some of the
5 data to try to better understand why we disagree, and
6 bring some of those issues to resolution. It's a two-
7 sided equation, as you well know. We were looking
8 both at the probabilities and the consequence to
9 understand this total contribution to the repository
10 performance.

11 And coming up in the spring, we'll be
12 getting together on the first part of that equation,
13 the probabilities, and look forward to good critical
14 analysis of the work done by the ACNW members.

15 There are a number of pre-licensing
16 interactions. When we started down this path, I
17 looked back a couple of years ago, we identified 293
18 specific action items that we wanted to address before
19 the application for Yucca Mountain comes into us.
20 That application is due to us in December of '04, and
21 I think we've made good progress on those 293 issues,
22 with a lot of support from the ACNW. I would say
23 we've addressed roughly a third of them at this point
24 in time.

25 We've got another third of those under

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1 review right now, and the final third are yet to
2 receive any submittals on. And what we've talked
3 about with the Commission yesterday is within that
4 final third, when you think about this from a risk
5 perspective, some of our highest risk items reside
6 within that last third, so it's going to be a big
7 push, I think starting later this spring, into the
8 summer and into the fall, as we start to bring closure
9 to some of those issues. Well, not actually close
10 them. Let me go back and make sure.

11 We need to address them. The effort here
12 is to make sure that when we get a license application
13 in December of '04, it's a complete application that
14 will allow us to start our technical review work. But
15 making sure that we understand what is going to be
16 coming in in that application is going to be critical
17 to our ability to complete the review. We've only
18 allotted ourselves 18 months to finish a review of
19 this application, so it's going to be a lot of work in
20 that area, as well.

21 Once we get the application, it's our
22 understanding that the Commission itself will define
23 the work that it wants the ACNW to do. It's the ex
24 parte, the wall comes down, and at that point in time
25 the ACNW will be mostly supporting the Commission

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1 efforts.

2 MEMBER KRESS: Do you have something
3 equivalent to the safety goals as risk-acceptance
4 criteria for Yucca Mountain?

5 MR. VIRGILIO: No, we don't at this point.
6 We had thought about working on some of those
7 activities and we backed away from that. And now
8 we're developing some risk guidance and looking at
9 actual applications. Maybe some day we'll go back
10 there again, but I think it was a little premature,
11 and I think we need a little bit more experience in
12 trying to see how our programs operate, and what
13 framework we could put around them to risk-inform
14 them.

15 Slide 4, just talking a little bit more
16 about the risk-informed baseline approach that we're
17 working on right now. We've scheduled several
18 meetings in the future on that, but mostly today it's
19 really focused on applications, looking at how we can
20 make the programs better without unfortunately having
21 the safety goals as a basis.

22 Another issue that I wanted to mention
23 now, we're doing a lot of work to try to risk-inform
24 our decommissioning program. And we've worked with
25 the Commission and we've gotten guidance back from

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1 them on areas where we can make the program better.
2 And in this context, I think it's more making the
3 program more realistic, using more realistic
4 assumptions, realistic methods to calculate dose.

5 MEMBER KRESS: Is it mostly focused on the
6 spent fuel pool?

7 MR. VIRGILIO: This is mostly focused on
8 the decommissioning of the facilities. We
9 decommission roughly 300 facilities per year, material
10 licensees --

11 MEMBER KRESS: Oh, these are materials
12 issues.

13 MR. VIRGILIO: Now but in that same pot,
14 we've got a lot of legacy sites, and we've got some
15 reactor sites. There's I think in the program right
16 now, we've got about 15 to 20 reactor sites that we're
17 decommissioning. But many legacy sites where we've
18 got ground water contamination and other issues that
19 we're dealing with. Some of the methods that we've
20 used there have been very deterministic. Some have
21 challenged them as being very conservative. It's an
22 opportunity I think for us to use more realistic
23 scenarios.

24 For example, for those of you who have not
25 been involved, one of the default scenarios is a

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1 resident farmer. Well, on some of these sites, I
2 mean, you know, they're industrial facilities.
3 They'll never be anything but industrial facilities,
4 and so we're looking to use more realistic assumptions
5 and methods to determine whether these sites are
6 suitable for decommissioning at this point in time.

7 Moving ahead to Slide 6, one of the areas
8 - and this is where the Chairman started the
9 conversation about the ACNW yesterday, is the package
10 performance study. This is a research project. NMSS
11 is providing support to research in this area, but
12 it's key to our programs in terms of helping gain
13 public confidence about the robustness of the casks
14 that are going to be used to transport spent fuel to
15 a repository.

16 ACNW comments were considered as we
17 developed the test protocols. We're now in a process
18 where we've engaged the Commission to decide which
19 option - there is a range of options as far as the
20 test program. Once we get that back from the
21 Commission it'll be an opportunity for us again to
22 engage with the ACNW to talk about how are we going to
23 move forward now with the test protocols.

24 Another area that I wanted to go to I
25 guess is Slide 7, again coming back, the risk-

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1 informing activities are very cross-cutting to our
2 programs. It's very challenging because of the broad
3 spectrum of licensees that we regulate, and our
4 significant efforts over the shorter term are going to
5 be developing tools to help guide us in this area.

6 In terms of -- I think those are probably
7 some of the more significant activities. If I think
8 about spent fuel, and I know Ruth has been very
9 involved. She's been meeting with Bill Brock and our
10 staff about this. We've got a number of emerging
11 issues in this area. The cask vendors continue to
12 come in and challenge us.

13 Three areas that we're working on today
14 involve high-burnup fuel, burnup credit and moderator
15 exclusion. These are all areas where I can see that
16 if I look forward in the calendar, although they're
17 not set in the calendar today, they probably will be,
18 because there's an interest. There's an interest in
19 being able to put more fuel into the casks, fuel with
20 higher heat loads into the casks, and that is going to
21 require us to look carefully at the calculations and
22 the methods.

23 Some of what we've done heretofore has
24 been based on deterministic methods and engineering
25 judgments. And today we've got to, I think, look in

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1 a more sophisticated way, and to see what we can do.
2 So I see that as yet another area where we're going to
3 be involving the ACNW.

4 MEMBER APOSTOLAKIS: Can I ask - the first
5 bullet, what exactly does that mean - risk-informed
6 decision making? Are you going to develop the
7 equivalent of the Regulatory Guideline 174 for NMSS,
8 or are you going beyond that and trying to see how, in
9 fact, one would bring the traditional factors into the
10 decision making process, in combination with risk
11 information, which the reactor site hasn't done yet?

12 MR. VIRGILIO: Simple guidance. And I
13 think what I was -- we had a briefing of the TAs a
14 couple of weeks ago for the Commission, and in my mind
15 as we went through this, I kept seeing the chart that
16 we had in the early versions of 1.174 as the model of
17 how we might do this.

18 MEMBER APOSTOLAKIS: Yes.

19 MR. VIRGILIO: You know, what range are
20 you in.

21 MEMBER APOSTOLAKIS: The philosophical
22 approach, I can't see any reason why it should be any
23 different.

24 MR. VIRGILIO: Philosophically, I agree.
25 And that was my model as I was trying to describe it

1 to the Tas.

2 MEMBER APOSTOLAKIS: We're all
3 philosophers here.

4 MR. VIRGILIO: Yes. Simplest tools that
5 can used by the evaluator, the staff.

6 MEMBER APOSTOLAKIS: Yes.

7 VICE-CHAIRMAN WALLIS: I have a question
8 for you. There is transportation handling all that of
9 nuclear waste, and that is part of your scope of
10 effort. I assume that ACNW is concerned with that
11 too. There is also transportation handling of the
12 other end of the process, the fuel and the various
13 forms that Uranium takes before it's fuel and so on.
14 That's not waste, but which committee is concerned
15 with that, if any?

16 MR. VIRGILIO: It would be the ACNW.

17 VICE-CHAIRMAN WALLIS: ACNW also looks at
18 the front end.

19 MR. VIRGILIO: If we were doing work in
20 that area, and we're really not today doing any
21 exploratory work --

22 VICE-CHAIRMAN WALLIS: But it is
23 transported.

24 MR. VIRGILIO: Yes, sir, it is.

25 VICE-CHAIRMAN WALLIS: And you have

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1 similar sorts of problems. Maybe some new problems,
2 different problems, as well.

3 MR. VIRGILIO: Different problems, but
4 none I think that are as challenging or as high on our
5 priority list today as the back end of the process.

6 VICE-CHAIRMAN WALLIS: Did you say
7 something about moderator exclusion, and moderator
8 exclusion is a bigger problem with fuel than it is
9 with waste.

10 MR. VIRGILIO: Today when we think about
11 the challenge we have though, it's the vendors who are
12 doing the casks, the transportation of casks or the
13 spent fuel, and their desire to put more fuel into
14 those casks, that that is the issue for us today.

15 DR. TRAVERS: Obviously want to optimize
16 that, and moderate exclusion has been a difficult
17 hurdle, that along with burnup credit has been two
18 factors I think --

19 MR. VIRGILIO: It takes us down two paths,
20 one structural and another on the criticality
21 analysis.

22 DR. TRAVERS: Our final presentation is by
23 Jim Dyer who as Sam mentioned, returned to the Office
24 of Reactor Regulations as Director. He'll post the
25 regulatory information conference next week. I think

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1 we have on the order of 1,200 people registered for
2 that meeting, so that meeting has continued to grow,
3 and is really one of the key meeting of the year I
4 think, certainly from a safety regulatory standpoint.
5 It's probably the most important. Jim.

6 MR. DYER: Well, thank you, Mr. Chairman,
7 and members of ACRS and ACNW. And yes, I am new, and
8 I am back. And just to correct Sam, I don't know
9 everything that he didn't know. I will be -- in my
10 five months here, I'm still coming up to speed on a
11 number of issues, so I've brought Dr. Brian Sheron,
12 and we'll rely on Sam, and Bill Borchard, my Deputy.
13 And if John Craig comes into the room, I'll rely on
14 him too if there's any questions as I come up to
15 speed.

16 The last time I was before ACRS, I was
17 trying to remember, but I believe it was about 1985,
18 1986, and it had to do with the Rancho Seco Nuclear
19 Power Plant restart activities, and that was it. It
20 restarted, but it didn't last long after it restarted.

21 I've met many of you on regional visits,
22 either Region 4 or to Region 3, or the sites, and so
23 I'm back in a new role here in NRR, and it is a
24 significant broadening of my activities in that.

25 So starting with Slide 2, the topics we

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1 wanted to review with you today involve risk-informed
2 initiatives, such as PRA quality and 50.46 rule
3 making. Some of the emerging technical issues we're
4 dealing with, such as unanticipated effects of the
5 power uprates we've granted, particularly with the
6 boiling water reactors. PWR sump performance issues.
7 Also, where we're headed with respect to some of the
8 electrical grid reliability activities that have
9 started since the August 14th blackout. And lastly,
10 of course, an area that you've been very involved with
11 in our licensing activities with the advanced and new
12 reactor designs.

13 Slide 3, please. The first topic is our
14 activities are underway with PRA quality. And in
15 reference to this, in a December 18th memo of 2003,
16 the Commission directed the staff to take actions to
17 stabilize our activities with respect to PRA, and
18 outlined a four-phased approach with three bins. And
19 directed the staff to engage stakeholders and develop
20 an action plan to implement these phases with, in
21 particular, going to Phase 2 in a short term, and
22 Phase 3 by December 31st of 2008.

23 We have established a joint research and
24 NRR working group to develop the implementation plan.
25 We held a public meeting on February 24th to discuss.

1 the approach we would be taking to accomplish this, to
2 develop the plan. We received favorable feedback at
3 that public meeting. We also plan to have a second
4 meeting to discuss our draft plan later this month.
5 And then hopefully, before that public meeting we will
6 have a draft, provide a draft to the ACRS and meet
7 with the subcommittee on March 24th of this year. I
8 think some of -- we had a typo in some of our written
9 -- it's not '05. We're going to engage you in
10 calendar year '04, hopefully later this month. And
11 then followed by a Full Committee Meeting next month.

12 As I say, right now we're still just
13 developing the implementation plan in which to do
14 this. Again, we hope to put the final touches on that
15 plan, and provide the draft -- provide the plan to the
16 Commission in July of 2004, and what we're shooting
17 for in that plan is to identify the necessary guidance
18 documents for each phase and each application in our
19 group, as well as a schedule for those issuance, and
20 be able to -- so when we flush out that plan, it
21 should have more detailed schedule information I think
22 you're interested in.

23 The second topic - Slide 4, please - is
24 recent activities on the 50.46 large break LOCA
25 redefinition rule making. Again, going back, on March

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1 31st of 2003, the Commission directed the Staff to do
2 two things; one was to prepare a proposed rule that
3 allows for a risk-informed alternative to the maximum
4 large break LOCA size originally scheduled by the end
5 of this month, and also for research to come up with
6 a criteria for redefining the large break LOCA, as
7 well as also proceed with rule making to relax the
8 requirements for loop LOCA by the end of July.

9 We formed a working group and held some
10 public meetings with the industry. Also, there was
11 some activities and workshops overseas, and we
12 received some white papers on that. And as a result
13 of these activities, we identified some issues that
14 require resolution before we proceed with this rule
15 making activity.

16 Dr. Travers just recently signed out a
17 commission paper, I believe it's dated March 3rd, that
18 identifies these issues, and it went before the
19 Commission. But it identifies some policy issues,
20 most significant is the intent of the SRM of March
21 31st of last year to be a narrow scope or broad scope
22 redefinition. And when we read the SRM, it directs
23 things toward a narrow scope, but there's also
24 references that it may have broader implications. The
25 industry feedback is anticipating a broader scope rule

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1 that would allow some rather significant changes.

2 VICE-CHAIRMAN WALLIS: This committee has
3 -- if I'm allowed to ask questions?

4 CHAIRMAN BONACA: Go ahead.

5 VICE-CHAIRMAN WALLIS: Some interest in
6 the fact that 50.46 has sort of tentacles that go out
7 into all kinds of regulations, and you cannot just
8 look very narrowly at say one aspect of it.

9 MR. DYER: Yes. We certainly agree. In
10 fact, in my way of thinking, it's probably one of the
11 more complex things that you could consider. If you
12 think of the work that went into the original ECCS
13 rule, and how it's been utilized in our regulatory
14 structure since then. It's one that has to be very
15 carefully considered.

16 MEMBER SHACK: Again, as Mario mentioned,
17 you have this incoherence problem. I mean, it's one
18 thing to perhaps have a voluntary alternative for a
19 very specific regulation, but for something like
20 50.46, it would seem like it would have a tremendous
21 impact, and you'd have very wide-ranging differences
22 of regulatory structure for different plants. And
23 that seems perhaps more than you can really want to
24 accommodate on a voluntary system.

25 MEMBER ROSEN: There's a tendency given

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1 all that to say this is an intractable problem. And
2 I think that would be wrong to conclude that. It is
3 a very difficult problem, but the fact that we're
4 willing to address it is commendable.

5 MR. DYER: Well, some of the issues -- I'm
6 glad you brought that up, because that -- you know,
7 coming from a regional perspective where rule making
8 is not -- you're looking at the implementation and you
9 have something that -- this is my initial venture into
10 rule making. This was quite a learning curve, and
11 just that. The policy issues that came out, some of
12 the issues identified are the retention of mitigation
13 capabilities for those large breaks that are beyond
14 this alternate break size up to the double-ended
15 guillotine break. The SRM refers to the term, you
16 know, the changes should be reversible to be able to
17 facilitate periodic re-evaluation as to what the large
18 break redefinition should be, as aging comes in it
19 changes that. Well, how are we going to implement
20 that reversibility?

21 Additionally, the SRM called for looking
22 at the use of best-estimate codes for evaluation
23 models for the large break LOCA analysis. And, of
24 course, in some cases, the codes for small break LOCAs
25 are not developed at this time.

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1 And lastly, how do we apply this -- the
2 SRM also looked at how do we apply this to future
3 reactor designs. And we have some questions and
4 issues about whether or not that shouldn't be a
5 separate undertaking, separate from our activities
6 under 50.46.

7 Commensurate with that, with the
8 definition of -- the understanding of the broad scope
9 versus narrow scope, and that also leads to how do we
10 go about defining the actual technical issues in that,
11 so at this point, the paper - I don't know if it's
12 reached ACRS yet, but the paper -- we sent the
13 Commission paper up to the Commission this week, and
14 awaiting guidance and continue to develop --

15 MEMBER KRESS: Is one of the policy issues
16 associated with this a firmer, tighter definition of
17 defense-in-depth?

18 MR. DYER: That is also one of the
19 technical issues that was identified, as what do we
20 mean by it? Is it graduated? Is it graded approach,
21 and that. And, of course, it has -- in our
22 discussions with the industry and their expectations,
23 and there's a lot of give and take. As Mr. Wallis
24 said, it's a lot of tentacles, and what does this
25 mean? One of the subtleties that I hadn't thought

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1 about when it was discussed in the paper is, is the
2 Commission paper says we would not change -- allow any
3 changes to ECCS flow rates. Yet when talking to the
4 industry, what we're saying is if there's relief in
5 the large break LOCA it would allow some amounts of
6 power uprates, so you don't think ECC --

7 MEMBER KRESS: Yes, it's a basic --

8 MR. DYER: The same relationship, and the
9 margins in defense-in-depth are there, so it's these
10 kind of unintended consequences that we wanted to
11 raise, and try to lay out a strategy for dealing with
12 them going forward, but it is very complex.

13 CHAIRMAN BONACA: One additional issue
14 that we have not really discussed at length here, but
15 I have a concern about is the possible cross-effect of
16 all this. For example, we have Option 2 that may
17 cascade into certain decisions on deterministic
18 evaluation and how you treat redundant trains, for
19 example. If you have multiple trains, you may decide
20 that each one of them is no set significance. That
21 may apply even to ECCS systems. And now on the other
22 hand you have 50.46 evaluation that comes across. I
23 think there are additional tentacles that may be
24 there. I'm not saying there are. I'm only saying
25 that there may be that you have to look for.

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1 DR. TRAVERS: Some of the other things I
2 think of are the sorts of considerations that have
3 gone into our thinking on severe accidents, and what
4 we've considered acceptable for coping with those, the
5 regulatory footprint or lack of a regulatory footprint
6 in that area based on the margins that have existed or
7 presumed to have existed as a function of these
8 requirements.

9 MR. DYER: It looks to be a very
10 challenging period with respect to the subject in the
11 upcoming future, and we'll provide you the schedules
12 as soon as we get the feedback and are able to put
13 together or adjust our rule making plan for this
14 activity.

15 Slide 5, please. The next topic is some
16 of the unanticipated, we're dealing with some of the
17 unanticipated effects of the power uprates. And in
18 particular, the extended power uprates at the boiling
19 water reactors. Plants that I have probably a little
20 too intimate knowledge of is Quad Cities I and II, and
21 Dresden II and III experienced a number of flow-
22 induced problems as they went up in power to their
23 extended power uprates. Continuing problems with
24 steam dryer cracking. In fact, Quad Cities Unit II is
25 an outage as we speak, and are still, I think, going

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1 through and identifying the cracks in the steam dryers
2 at some of the welds they repaired, and some of the
3 supports they replaced at the last outage, not eight
4 or ten months ago. And there's been continuing
5 problems in that area.

6 Additionally, some of the increased flows
7 at the Dresden Station have taken off feedwater
8 probes, and they found they worked their way into the
9 feedwater ring up in the upper part of the vessel.
10 And questions as to what have we adequately assessed
11 all the implications of an extended power uprate in
12 looking at it.

13 Also, the other issue that came up was
14 that the Quad Cities Station, a safety relief valve
15 that due to the different vibration induced failures
16 on a specific component.

17 The licensee's response to these
18 activities to-date has been very good as far as fixing
19 the problem. It just seems to create new -- there
20 seems to be another set of new problems, and now we're
21 trying to work with the BWR Owner's Group to get out
22 ahead of these issues in a more proactive mode, and at
23 the same time adjust our review standards to capture
24 where we're going to the extent of power uprates for
25 the other plants that may have this.

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1 The problems appear to be limited, as I
2 said, to some of the design of the steam dryers,
3 particularly with the square designs which have
4 limited applicability within the fleet. The Owner's
5 Group and General Electric are working to understand
6 what the design is, and what is the solution for that.
7 For our part, the NRC Staff has issued an information
8 notice, and we're in continual dialogue with the BWR
9 Owner's Group on the directions to be taken, and we're
10 monitoring the industry's activities. And we're
11 looking whether or not we need additional regulatory
12 information. I notice there are summaries to go out,
13 and generic correspondence on this particular issue,
14 as well as what are the changes that we need to make
15 to our review standard and expectations for the
16 licensee submittals.

17 CHAIRMAN BONACA: We raised some concern
18 on, in fact, what we call it at times synergist
19 effects, and that was a misuse of the word, about two
20 years ago, three years ago when we initiated some
21 reviews. And some of the concerns were really to do
22 also with components that might not be challenged by
23 just the power uprate but by, for example, LOCA
24 resulting for an uprated plant, which means that the
25 lodes imposed on some internals, for example, and we

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1 looked at some of the issues as a re-evaluation of
2 internals capability, you know, may just simply not
3 work the way they were expected to. I know we have
4 confidence that we can perform the -- that comparison
5 with the original design criteria, at times don't
6 think there's a full understanding of what aging has
7 done to this component over a 20-year period.

8 Now it seems to me that the failure of the
9 steam dryer components here, it's a flag, you know,
10 and that's really an issue that manifests itself, in
11 fact, due to normal operation. The question I have at
12 times in my mind is are there issues that will not
13 manifest themselves until you have, in fact, an
14 accident, because you don't have the opportunity of
15 having to go to an accident to see them manifest
16 themselves. It will happen, what will happen. So the
17 reason I bring it up is that I know there was an
18 initiative in research to look at again, what we
19 called synergistic and really shouldn't be called that
20 way, but these kind of interactions. And is there
21 still some activity on that, or was that put aside?
22 I know there was some budget issue there.

23 MR. SEGALA: Well, we do have an
24 initiative in that area which we're working right now.
25 And it's focused at this point in time on developing

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1 some methodology for how to go about looking at what's
2 been characterized as synergistic effects between
3 power uprates, aging, and those sort of things. So
4 there's some work going on there.

5 In terms of the future budget, I think --
6 maybe Jack Rosenthal can help me out here. I think
7 that the budget --

8 MR. ROSENTHAL: Well, there's two
9 activities. There's relatively little budget. One is
10 safety margins work, which is a project with OACD in
11 which we're trying to look at the total margins in the
12 plan for both thermohydraulic and mechanical
13 standpoint. And that picks up the synergistic issues
14 in that form. And in a much more narrow form, we've
15 been working with the Division of Engineering in NRR,
16 and we're trying to do some quantitative work with --
17 actually one of our new tools, Computation Fluid
18 Dynamics, to look at the lodes on the upper internals,
19 and then do mechanical analysis with ABICUS of how the
20 dryer response might be, as an example of how we might
21 get out in front of some of these issues.

22 MR. SEGALA: Thank you, Jack.

23 MR. SIEBER: Before we leave this area,
24 and prior to the steam dryer failures at Quad Cities
25 and Dresden, this Committee had a concern that the

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1 increased flows and the increased duty on components
2 in BWRs with the large power uprates may induce some
3 kind of failure mechanism that we didn't know about,
4 that would be self-revealing. Of course, the dryer
5 failures are an instance of that.

6 I'm aware of your February 3rd meeting
7 that the staff had with the BWR Owner's Group and what
8 transpired at that meeting. On the other hand, I
9 think there is sort of a larger concern. The dryer
10 failures are due to cyclic fatigue, but there are
11 other phenomenon whose impact has increased, for
12 example, floor accelerated corrosion and other factors
13 in plants that the uprate might accelerate the
14 propensity or change the risk of some kind of failure.
15 The dryer failure, of course, is non-safety-related,
16 but the loose parts it generates could affect safety-
17 related equipment, so it's not something that one
18 would just say well, it's not safety-related, so we
19 don't have to worry about it.

20 I guess it's particularly concerning when
21 the reactor is shut down, the steam dryer is repaired.
22 You can't find all the parts so you button it up and
23 start it up again. To me, that's a problem, and
24 something that really should be addressed. So I'm
25 wondering if you have looked at this broader scope of

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1 things that can happen due to the increased intensity.
2 For example, the large transient testing which we
3 aren't requiring upgrades to do. One of the primary
4 reasons for doing that was to look at power flow
5 curves and be able to plot another point.

6 On the other hand, you're testing your
7 main steam stock valves and putting them under
8 additional stress, more stress than they were
9 originally intended to take because the flow is
10 greater, and other components are really stressed a
11 little bit more for the same kinds of reasons. So
12 perhaps you could tel us what your broader picture is
13 with regard to the dryer failures, and the power
14 uprate situation.

15 MR. DYER: I'll let Chris Grimes address
16 some of the specifics, but just on a more broader
17 global, broader perspective on that - we made a
18 conscious effort at the time as to what would be the
19 extent of pre-operational testing, and individual
20 testing of components. And we didn't require the full
21 blown pre-op test, as you would say, the shutting
22 MSIVs from 100 percent power, but we did verify that
23 all the individual components worked, and felt very
24 comfortable that integrating those parts, given that
25 some of these plants have had 15 or 20 years of

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1 operation, that they were going to perform safely that
2 way. And to that extent, when we've had scrams and
3 the term -- that has been an issue that by and large
4 we were accurate. There have been individual
5 components that have operated out of, I'll say the
6 relevant range as the powers, and there's made some
7 adjustments in that, much as we would with a first of
8 a kind effort on any plant design in that. But we did
9 take a look at that, and made a conscious decision on
10 some of these interests.

11 MR. GRIMES: This is Chris Grimes. I'm
12 the Deputy Director of the Division of Engineering in
13 NRR, and I want to assure you that we're very
14 interested in the generic implications of some of the
15 findings and the lessons. Our immediate focus is on
16 making decisions about appropriate requirements for
17 startup of the Dresden and Quad Cities units who have
18 had the experience. But then beyond that, as the
19 Jacks, Jack Strosnider and Jack Rosenthal, we're
20 seeking support from research to get some
21 computational fluid dynamics. We're most troubled by
22 the BWR Owner's Group difficulty in understanding and
23 characterizing the loading conditions that are causing
24 the failure modes.

25 We think that we've got from our license

1 renewal experience, a fairly good understanding about
2 the aging effects, but if you can't characterize the
3 load, you can't predict how the aging effects will
4 reveal themselves. And so we're going to continue to
5 pursue the generic implications with the BWR Owner's
6 Group. And then beyond that, whatever other lessons
7 we might learn about what are appropriate review
8 standards for the loading conditions associated with
9 all of the power uprates, or even future plant
10 designs. There are a lot of lessons to be learned
11 from this, and as you pointed out, the lack of safety-
12 significance with the dryer failures is also causing
13 us to go back and reflect on the decisions that we
14 made early on about the relative importance of loose
15 parts, and what their consequences are, and what their
16 risk implications are. So there's a lot more that we
17 have to do in this area.

18 MR. DYER: Yes. And the last point that
19 Chris just brought up is one I'd also like to make, is
20 both NRR and Region 3 in the case where was the
21 missing probes and the breakup of some of the steam
22 dryer materials and that, there was a strict
23 accountability of finding all the parts, as well as a
24 parts evaluation as to where they could be. And if
25 they couldn't account for them, and what the possible

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1 consequences were. And it was acceptable for, as part
2 of the restart process, those were evaluated to make
3 sure the safety -- the issue we're wrestling with is
4 the next outage you have to find the parts, or how
5 long is this evaluation good for, and are you sure
6 that they're still in the same location.

7 MR. SIEBER: I'm familiar with those kinds
8 of evaluations.

9 MR. SEGALA: I just wanted to come back
10 and again point out that the international program
11 that Jack Rosenthal mentioned, it's the integrated
12 margins, so it's -- the intent there is to look at
13 margins throughout the operation of the plant. And
14 from an integrated perspective, so I think -- and
15 also, some of the work we're doing that I mentioned
16 very briefly in terms of trying to come up with a
17 systematic approach for going through and doing
18 exactly that integrated look. So the regulatory - you
19 know, the immediate issues are being dealt with
20 through regulatory activities, and with some research
21 support and some calculations and things. And then
22 there are some longer term issues to try to understand
23 more broadly what sort of things we need to
24 anticipate.

25 MEMBER ROSEN: Before we leave that topic,

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1 Jack - on January 30th, Dresden III had an overfill,
2 a vessel overfill after an automatic reactor trip due
3 to a turbine trip. And it was the first reactor trip
4 at either of the Dresden units resulting from a
5 turbine trip since implementation of the extended
6 power uprate, which was in October, 2002. So there's
7 a case where some of the people on the Committee's
8 concerns about integral testing seems to have been
9 borne out, that there were some difficulties when the
10 plant decided to do an integral test. And so I think
11 it might be of some use to you to hone in on that
12 event and think about it in this context.

13 MR. DYER: Yes, we did follow up on that
14 particular event from NRR, and it was a technician
15 error. They had not calibrated their instrument set
16 points appropriately for the increased power uprate.
17 It was a performance problem on the part of the
18 licensee. It wasn't an unexpected phenomenon. They
19 just hadn't recalibrated the set points appropriately
20 to prevent the overfill.

21 MEMBER ROSEN: That's Murphy's law.

22 MR. DYER: Yes.

23 MR. SIEBER: Well, thank you.

24 MR. DYER: Slide 6, please. Another area
25 is PWR sump performance. And again, we have a two-

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1 phase approach, as you're well aware. You've been
2 very involved and provided very good input to this
3 effort going forward so far, but our plans are we did
4 issue a bulletin back in June of 2003 requesting sort
5 of -- as a result of some of the preliminary studies
6 that were done by research and NRR on the possible
7 implications of PWR sump performance. And we're
8 currently in the process of issuing a generic letter
9 requesting a more detailed analysis. The Committee
10 for review of generic requirements reviewed this
11 document, proposed draft document last week, and so we
12 hope to issue the draft document out for public
13 comment hopefully soon as we're making changes in the
14 CRGR. Again, we're still on a schedule to issue the
15 final generic letter in August/September time frame,
16 as intended.

17 We're also providing industry guidance, as
18 you're well aware and you commented on, Reg Guide 1.82
19 was issued concerning sump performance. And
20 additionally, we are currently reviewing the NEI
21 guidance which was submitted October 31st, which sort
22 of provides a lot of the how-tos for the guidance and
23 reg guide requirements in Reg Guide 1.82. And at this
24 point right now, the belief is proposals in that were
25 to take credit for leak before break, and also

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1 proposed a fracture probabilistic fracture mechanics
2 approach to limiting the large break LOCA size for
3 consideration on PWR sump performance. And at this
4 stage, the Staff can't accept that based on where we
5 are right now.

6 However, we're still open to dialoguing in
7 conjunction particularly with the 50.46 activities in
8 going forward to develop a better understanding of
9 what is the appropriate large break LOCA size.

10 VICE-CHAIRMAN WALLIS: May I interject -
11 I'm trying to understand high level again. The reg
12 guide covers the water front very well, except for
13 chemistry. It has a lot of requirements. Thou shalt
14 calculate this, this, this, this, this, this. Now it
15 doesn't tell you how to do it. And then there seemed
16 to be waiting for NEI to figure out how to do it, and
17 it may well be that you folks should think about how
18 is the staff going to decide what's an acceptable
19 method?

20 MR. DYER: The staff or proposed their own
21 approach for doing it, and we're also merging that
22 with the NEI. And we're starting a workshop at the
23 end of this month to resolve our differences. I think
24 it's March 24th and March 25th.

25 VICE-CHAIRMAN WALLIS: Yes. I think it

1 would be very interesting to see what happens. We
2 want to hear more about it.

3 MEMBER ROSEN: As Dr. Wallis also said
4 earlier in this meeting in the context of this topic,
5 we would like to have some further discussions on Dr.
6 Travers' response to our earlier letter, because I
7 think it would help us understand each other's
8 position to do that.

9 MR. DYER: We'll do that. Okay. Slide 7,
10 please. Also an issue of challenge to the NRR staff
11 is the follow-up to the electrical grid liability
12 issues arising out of August 14th, and some earlier
13 events that we are studying. Of course, there is the
14 Canadian-U.S. review that Sam Collins is heading up
15 from the staff's perspective supporting the Chairman
16 on a larger scale, but NRR also has a Lessons Learned
17 activity specifically as it reflects on Lessons
18 Learned from the U.S. Nuclear industry and those
19 activities.

20 In particular, our concern is that some of
21 our earlier assumptions and beliefs at the time of
22 licensing and rule making about the grid structure and
23 the reliability of the grid structure may be
24 challenged by some of the more recent information that
25 we have, particularly from the August 14th blackout,

1 but also earlier grid transients on the west coast and
2 throughout the United States. In particular, the
3 concern is that the requirements of GDC 17 on the off-
4 site power, as well as the requirements understanding
5 assumptions for the station blackout rule which looked
6 at the reliability of off-site power. And then
7 factoring into that was, of course, the recent
8 research report, NUREG 1784 which indicates that
9 though loss of off-site power events appear to have
10 decreased, the duration appears to have extended. And
11 how does that reflect on our regulations and our
12 currents. We're waiting, of course, the outcome --
13 this is closely aligned with, again as I said, some of
14 the Canadian-U.S. studies that are going on, and
15 dealing largely with the NERC and FERC
16 responsibilities for grid reliability and the
17 direction there. But also, looking at on a short
18 term, what should our nuclear power facilities be
19 focused on, particularly as we come to the summer
20 activities?

21 Yesterday we held a workshop at the
22 Doubletree Hotel up the street here to go over -- find
23 out from the industry what are they doing in response
24 to the potential for grid reliability concerns,
25 particularly during the summer. And at this stage

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1 we're evaluating what we heard, and evaluating whether
2 or not we need to go forward with some sort of a
3 generic correspondence on a rapid basis, on an
4 expedited basis before the summer comes. And the area
5 we're focusing on to understand is under the
6 Maintenance Rule A-4 section, what are licenses doing
7 considering how they're factoring in potential grid
8 reliability concerns during the summer in planning
9 their maintenance on their on-site electrical power
10 sources.

11 MEMBER LEITCH: Jim, just a slightly
12 different facet of the same issue. WE've been
13 monitoring scrams in reactors, and I guess even before
14 August 17th, we began to see what we felt was an
15 increasing trend in what I'll call scrams initiated by
16 actions beyond a generator break, either grid
17 reliability, transformers, relays associated with
18 protective schemes, breakers, other switch yard
19 equipment and beyond. And we had -- you know, there's
20 certainly the August 17th event, or August 14th event
21 was well-publicized and I think resulted in nine full
22 hour scrams. And there were several others associated
23 with Hurricane Isabelle. But even considering that,
24 they were adding those in. There were like 27 full
25 power scrams, I think, depending upon exactly the time

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1 frame you use, but over the past summer and early fall
2 there were about 27 full power scrams due to what I
3 would call beyond the generator breaker kind of
4 issues. And what is of concern is the challenge that
5 that places upon the nuclear plant when that occurs.

6 Now in the August 14th situation, the
7 plants I think responded very well, actually. I think
8 the diesels all came on and everything worked fairly
9 well. There was another less publicized event where
10 there was a grid reliability situation that resulted
11 in a double scram at Peach Bottom, and the system did
12 not operate as well in that case. There were a number
13 of complications. One of the diesels started and then
14 immediately tripped, and there was a stuck open safety
15 relief valve, and so I guess our concern is -- I mean,
16 grid reliability is important for the grid, and that's
17 good, but we also want to think about what grid
18 reliability, what the impact of that is back on the
19 nuclear power plant because it does place the plant
20 through significant challenges, as we all understand.

21 And as you look at the scrams that were
22 caused, one begins to wonder absent the August 14th
23 situation, but the remaining ones, you begin to wonder
24 have we changed operating or maintenance practices on
25 that fairly vital substation equipment, because as you

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1 look at the reasons for the scrams, a lot them seem to
2 be problems with calibration of the relay schemes, or
3 I think there's some other things that you can't do
4 much about. Like there was a fire on a wooden pole in
5 one plant. There was a crop duster ran into a
6 transmission line at another plant. Taking aside
7 those episodes, it still seems to me that there's a
8 degradation in the way substation equipment is being
9 maintained and operated.

10 And often times, I don't know to what
11 extent this is related to the reorganization of the
12 business. I think there's a factor there to be
13 considered. It used to be that the whole utility was
14 one enterprise. Now in many cases, they're different
15 organizational enterprises, and the line is drawn some
16 place around a generator break. And it's a different
17 set of folks, with a different set of inherent
18 standards in their mind that are taking care of the
19 equipment out beyond the generator breaker. I think
20 it's appropriate for us to put our nose under that
21 tent a little bit, not only because of what it means
22 to grid reliability, but what grid reliability means
23 to the nuclear plant.

24 MR. DYER: I think -- my experience has
25 been that those problems were always occurring,

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1 probably not as much. I don't know if they're more
2 frequently now or improper work in the switch yard and
3 that has caused electrical transients and scrams, or
4 that -- there does seem to be a large number of them.

5 Some of the challenges I see now is
6 actually beyond the switch yard. I think many of the
7 -- with the new organization, as you would say of the
8 electrical companies and that, and the more
9 competitive market, I think the industry is trying to
10 take control of their switch yard. It's a lot of the
11 activities out beyond their switch yard in some of the
12 transmission lines and the stresses that they're
13 looking at. But I agree, we need to --

14 MEMBER LEITCH: One of the other
15 interesting things in that report you referred to was
16 the number of times when the transmission system is
17 operating in some kind of a contingency situation.
18 Now versus I think 10 years ago, there was a
19 comparison that it was up by, as I recall, an order of
20 magnitude, 10 times the number of situations where the
21 transmission system was being operated in a first
22 contingency kind of situation.

23 DR. TRAVERS: It's a good sensitivity. I
24 think we've noted similar things, and the Commission
25 is actually interested in this issue, as well, and

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1 they've had a number of dialogues with members of
2 FERC, Federal Energy Regulatory - who have the
3 responsibility for regulating the grid infrastructure,
4 and largely to make sure that they have a good
5 perspective on the importance of grid reliability to
6 our units. You've rightly noted when you separate
7 power production and transmission and distribution to
8 separate companies, there may be some created
9 disincentive to expend resources on elements of that
10 infrastructure that affect grid reliability. So I
11 think there's a general concern, and Sam may want to
12 talk about some of this. But there's a general
13 concern that this needs to have attention. It has a
14 much broader context, but we certainly recognize, and
15 we appreciate your comments on the importance of this
16 for the nuclear power plants.

17 MEMBER LEITCH: Yeah, when you're running
18 along on a 100 percent power and a generator breaker
19 opens, it's a gut-wrenching experience. A lot things
20 have to work right to prevent plant damage.

21 DR. TRAVERS: Sam, did you want to add
22 anything?

23 MR. COLLINS: Thank you, Bill. No, I
24 think Graham has fairly characterized the challenges.
25 It is a very interesting read to study the electrical

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1 portio of the task force report. It's a very detailed
2 chronology of the event sequences with some history of
3 the grid and of the vulnerabilities of the grid. Our
4 part is clearly defined by our roles and
5 responsibilities as a regulator, but I think operating
6 experience in the concept of Lessons Learned, as well
7 as influences to challenges to the plant is clearly
8 important.

9 There is some question on the setting of
10 th relays at these interface areas, and whether some
11 of those tolerances are tighter than they need to be,
12 and could they be more robust and, therefore, protect
13 the plant from these outside influences. Those types
14 of topics will be discussed between these interface
15 areas, which is new for us. It's a new area for us.
16 There are Congressional hearings set up to review this
17 report. It is a topic of the RIC next week.

18 MEMBER ROSEN: And I'm sure when you go
19 forward and do that - excuse me, Sam - you don't
20 forget history of the Millstone under-voltage and
21 issues of degraded grid, issues that were years and
22 years ago at Millstone. So we need to be assimilating
23 and putting all these thoughts together, not
24 forgetting the history.

25 MR. COLLINS: The final report is

1 scheduled for the latter part of this month. And I
2 think if the ACRS and other entities are not aware of
3 that, or not our normal distribution, clearly I think
4 that's a topic, a potential topic, but it is a body of
5 information that the ACRS would want to have access
6 to.

7 DR. TRAVERS: Yes. Even more recently,
8 Steve, there have been some issues at Calloway with
9 under-voltage, in an area of the country where there's
10 a lot of wheeling for power that's created that
11 circumstance.

12 MEMBER ROSEN: Yes, but there were a lot
13 of design changes made after the degraded voltage
14 situation at Millstone. It has fast-acting under-
15 voltage relays and things that -- all of that
16 complication needs to be considered as we enter the
17 new environment that the grids will be operating in.

18 MR. COLLINS: I think the Calloway
19 auctioneering system in their program is probably one
20 of the models now, as a result of that event.

21 MR. DYER: Okay. Slide 8, please - last
22 topic for today is, of course, new reactor activities.
23 And this is an area where the ACRS has been very
24 active and provided a lot of worthwhile input to our
25 overall review process. And, of course, looking for

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1 continued assistance on the AP1000 later this summer
2 as we go towards the SER issuance.

3 Additionally, the ACR700 pre-application
4 reviews and the ESBWR application reviews. We hope to
5 engage early and often in this avenue, particularly
6 with these designs that are new and unique, and
7 deviating from our traditional for circulation PWR or
8 pressurized water reactor and boiling water reactor
9 designs. And also, our early site permit reviews
10 which are currently underway and should be finished I
11 believe in early 2005.

12 DR. TRAVERS: I might make just a quick
13 mention, since this hearing is still in mind from
14 yesterday - one of the things that came up that has
15 bearing for us, and ultimately perhaps for our
16 interactions with ACRS, is the fact that DOE has a bid
17 out now for combined operating license. This would be
18 the final part of our Part 52 regulations - has yet to
19 be tested, if that's a good word. And there was a lot
20 of interest in the discussion about the interest of
21 the nuclear industry or lack of interest of the
22 nuclear industry on actively pursuing new plant
23 construction. And it was interesting for me, albeit
24 it wasn't my primary focus to sit there and listen to
25 some of it, but the implications for us, of course,

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1 are if that occurred, we'd be in a unique position to
2 finally have the responsibility - I was going to say
3 the opportunity, but it's really the responsibility to
4 evaluate a new plant and its complete design before
5 construction ever begins.

6 MR. DYER: Slide 9, please. And I guess
7 in summary, one of the things I can give you an
8 appreciation is, is that NRR has on its plate a number
9 of challenging, and diverse, and is rapidly evolving
10 in emerging issues as we go forward. It is proving to
11 be a very challenging period for us, both technically
12 and in financial realms with budget issues and that,
13 so we're working with research on a number of issues
14 which will come before the ACRS, particularly to risk-
15 inform our regulatory activities.

16 We're using the planning, budgeting
17 performance measurement process to add shed and handle
18 emerging issues, and I'll ask your indulgence as we're
19 going to be flexing schedules. And as these issues
20 could continue, I appreciate the ACRS flexibility to
21 meet a lot of our scheduled activities on short
22 notice, particularly in the advanced area, advanced
23 reactor area. And I want to ensure you that our
24 primary goal is maintaining the safety of the
25 commercial nuclear industry, and we appreciate your

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1 support in helping us do that.

2 DR. TRAVERS: Thanks, Jim. Mr. Chairman,
3 Mario, that completes the presentations that we had in
4 mind. It touched on a lot of what we think are the
5 significant topics that we will be continuing or
6 engaging you on, but not all. And Marty reminds me
7 that we have a couple of major facilities projects on
8 the NMSS side that will be coming before the
9 committee, ACNW and ACRS. The LES gas centrifuge
10 enrichment project, USIC is planning a similar
11 activity, license application. And, of course, the
12 continuing interactions on the MOD fabrication
13 facility. Thank you.

14 CHAIRMAN BONACA: Thank you.

15 MEMBER KRESS: One question on the
16 advanced reactors, in terms of -- in concept of
17 anticipating that might come about as a issue. Have
18 you given any thought to how you might react if
19 somebody came in with a request to certify the
20 cogeneration-type reactor, generating both hydrogen
21 and electricity at the same time? I understand DOE
22 has that on their agenda at some time.

23 MR. DYER: I don't have the details. I
24 know that we're looking at that as part of our budget.
25 We're developing the FY '06 budget input right now, ad

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1 our what-if activities in that, but we're not --

2 MEMBER KRESS: Yes. It may be a long time
3 down the road.

4 MR. DYER: I don't know where it will be.

5 DR. TRAVERS: I'm actually familiar with
6 some of the thought processes that have gone into
7 hydrogen, and we've heard some discussion of some
8 particular designs, like MAGGR and its relationship to
9 that capacity. But the reality of it is that we
10 haven't done a lot of thinking about the specific
11 unique elements that accrue from that sort of
12 application.

13 We are, on the other hand, open to engage
14 very early in what we call pre-application space, with
15 vendors who are interested in discussing with us the
16 possibility of developing a design certification. I
17 think we've got on the order of six of those sorts of
18 designs currently underway with one design, the AP
19 1000 formally in the design certification process
20 itself, as Jim indicated. So we're open to it. We
21 have to be prudent with the resources we can apply at
22 an early stage, because we're really largely uncertain
23 early on, unless somebody tells us, about what's going
24 to be and how much priority we can give to it. It's
25 largely dependent on the other things we have.

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1 CHAIRMAN BONACA: Any questions? Yes.

2 MEMBER WEINER: This is to Dr. Virgilio.
3 Could you expand a little bit on what you expect the
4 ACNW role to be in decommissioning, since you
5 mentioned it in your presentation?

6 MR. VIRGILIO: There is an exchange of
7 correspondence we've had with the Commission, what we
8 call the LTR paper - and I don't remember the number
9 off-hand, but we can get you a copy, and an SRM that
10 we received from the Commission that asked us to look
11 at making our program more realistic and more risk-
12 informed. There are several areas that we're going to
13 be looking at that span the scope from financial
14 assurance to the methods and models that we use to do
15 the dose assessments at the end of the process.

16 A more recent paper that we sent up to the
17 Commission has to do with intentional dilution of
18 soil, which is another area where I could see us
19 engaging. In my mind, and we'll have to work with the
20 Committee to actually set the agenda, but we've put
21 points on the calendar in the September time frame,
22 and actually sooner than that, actually in the June
23 time frame where we'd be engaging on various issues.

24 I think where we would probably get the
25 most benefit out of working with the Committee might

1 be on some of the work we're doing today on the
2 modeling scenarios. I could see that that would be an
3 area where looking at the assumptions and methods, we
4 could probably find a more realistic regulatory frame
5 work for some of our decommissioning decisions.

6 Now today we're sort of on the leading
7 edge in a number of our facilities. I mentioned the
8 residence farmer scenario. A number of facilities we
9 decommission today were actually on the leading edge.
10 We're using other scenarios. We're using parks, we're
11 using industrial scenarios, and we're using different
12 methods and assumptions, as well. But I think those
13 are the areas where we could engage with the Committee
14 and I think it would be most beneficial to us to get
15 your critical review of our program and feedback.

16 DR. TRAVERS: There is one thing I may
17 make note of, and that is the fact that there is one
18 relatively unique power uprate program that we'll be
19 looking at upcoming, and it's at Brown's Ferry Unit 1.
20 It has the interesting implications of the recovery of
21 that unit. I think that's the word that's being used,
22 that's been shut down since 1985, largely because of
23 design control and other programmatic issues that were
24 problematic at that time when all three units were
25 shut down. And coincident with that, their desire to

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1 have both a power uprate, extended power uprate and
2 their license renewed. So that will be a unique
3 challenge for us, and I'm sure the Committee will want
4 to be looking at how those interactions are considered
5 in those processes.

6 It is a plant that has maintained its
7 operating license since 1985, so it's been - I found
8 out this the other day - it's a plant that's been
9 paying our annual assessments all these years, but one
10 that TVA, the TVA Board just relatively recently I
11 guess decided they would undertake considerable effort
12 to bring back on line.

13 A large part of their philosophy and
14 strategy is one that will result in a large number of
15 components being replaced, so the issues associated
16 with long lay-up can be dispositioned. Hopefully from
17 their view, relatively straightforwardly, but in so
18 doing, we're going to be assuring that all of the
19 issues that were problematic at the time of the plant
20 shut down are addressed in connection with the
21 recovery. We'll be looking at the power uprate
22 application and, of course, the aging management
23 programs associated with the renewal. Sort of an
24 interesting project.

25 CHAIRMAN BONACA: Yes. Certainly, it's

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1 going to be a challenging one. Any other questions
2 from members? I guess we exhausted our questions
3 during the presentation. We also -- I mean, I point
4 out that we have such frequent interactions with the
5 staff on presentation and issues, I believe we have
6 a contractive relationship with the staff, allows us
7 to raise the issues and clear them, and the staff is
8 quite aware of what our interest is in the Committee.
9 With that, I thank you very much for your coming here
10 and meeting with us, and I'm sure I'm expressing the
11 opinion of all the members here. And thank you again.

12 DR. TRAVERS: Thanks for having us.

13 CHAIRMAN BONACA: With that we will take
14 recess for lunch until 12:30.

15 (Whereupon, the proceedings in the above-
16 entitled matter went off the record at 11:10 a.m.)
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CERTIFICATE

This is to certify that the attached proceedings
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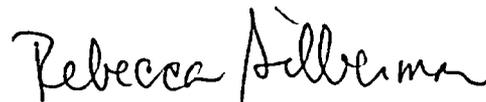
Name of Proceeding: Advisory Committee on
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510th Meeting

Docket Number: n/a

Location: Rockville, MD

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**ACRS/ACNW MEETING
WITH
EDO AND PROGRAM OFFICE
DIRECTORS**

**Jack Strosnider, Deputy Director
Office of Nuclear Regulatory
Research**

March 5, 2004

High-Priority Topics for 2004 and 2005

- **Spent Fuel Pool Risk**
- **Materials Research Program**
- **Non-Light-Water-Reactor Issues**
- **Advanced Reactor Licensing Framework**

Spent Fuel Pool Risk

- **Response to terrorist attacks assessed using new, detailed, more realistic models**
- **Integral analyses of operating BWR show more margin than earlier estimates**
- **Practical mitigation strategies identified to further reduce risk**
- **Interim results presented to ACRS; staff has also met with NAS to discuss ongoing work**
- **Final results of pilot plant study to be presented to ACRS in September 2004**

Material Research Program

- **Draft research plan developed, sent to Commission in February 2004 (SECY-04-0030)**
 - **Enhance capabilities/tools needed to evaluate emerging issues in radiation protection and assess potential impacts on NRC programs**
 - **Major goal: in-house maintenance of models/codes for assessment of health effects**
- **Preliminary plans to discuss implementation with ACNW in Fall 2004**

Non-LWR Issues

- **Issues developed in pre-application reviews of gas-cooled reactors:**
 - **1) Expectations for safety; 2) defense in depth; 3) use of international standards; 4) probabilistic approach to licensing basis; 5) source term; 6) containment vs. confinement; 7) emergency preparedness.**
 - **Detailed in SECY-03-0047; June 2003 SRM approved staff recommendation to include #2, 4, 5, 7 in framework; more information requested on #1, 6.**
- **Commission Paper in preparation to address #1, 6, to be discussed with ACRS in April meeting.**
- **Further work on other items to be folded into Advanced Reactor Framework effort**

Advanced Reactor Licensing Framework

- **First step in developing risk-informed, technology-neutral structure for future reactors**
- **Framework will guide development of regulations and design-specific implementation**
- **Schedule for ACRS interactions:**
 - **June 2004: Subcommittee meeting to solicit input on technical issues associated with preliminary results**
 - **November 2004: S/C and full ACRS briefings on final draft framework prior to public review and comment; letter will be requested. Information briefing on preliminary implementation work.**
 - **Mid-2005: Brief ACRS on resolution of public comments and final proposed framework.**

Other Significant Topics

- **Several other issues may be brought to ACRS & ACNW in next 18 months, e.g.,**
 - **Proactive materials degradation program (ACRS)**
 - **Risk-informed, performance-based fuel performance criterion (ACRS)**
 - **Follow-up on key items in ACRS report on RES programs**
 - **Package Performance Study (ACNW)**
 - **Options discussed in SECY-04-0029, February 2004**
- **RES is providing technical support to program offices in other key areas.**
- **Further information on schedule to be developed.**

Summary and Conclusions



ACRS/ACNW Meeting
with EDO and Program Office Directors
March 5, 2004

Jim Dyer, Director
Office of Nuclear Reactor Regulation



Overview

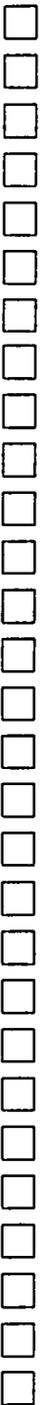
■ Risk-Informed Initiatives

- ◆ PRA Quality
- ◆ 50.46 Rulemaking

■ Emergent Technical Issues

- ◆ Unanticipated Effects of Power Upgrades
- ◆ PWR Sump Performance Issues
- ◆ Electrical Grid Reliability

■ New Reactors



PRA Quality

- Commission directed staff to take actions to stabilize PRA quality expectations and requirements
- Staff will meet with:
 - ◆ Public on 2/24/04 and 3/24/04
 - ◆ ACRS on 3/25/05 and 4/15/05
- Staff plan to be provided to the Commission by July 2004

50.46 Rulemaking

- Commission directed staff to prepare rule which will risk-inform:
 - ◆ Maximum LOCA break size
 - ◆ LBLOCA/LOOP coincidence
- Staff requested Commission direction and additional guidance on policy issues to facilitate resolution of identified technical issues associated with a proposed rule.

Unanticipated Effects of Power Upgrades

- Flow-induced vibration problems:
 - ◆ Steam dryers
 - ◆ Steam and feedwater equipment
- BWR Owners Group leading industry response
- NRC actions include:
 - ◆ Review and monitoring of events and industry activities
 - ◆ Issuance of information notices
 - ◆ Updating review standard
 - ◆ Considering further generic actions

PWR Sump Performance

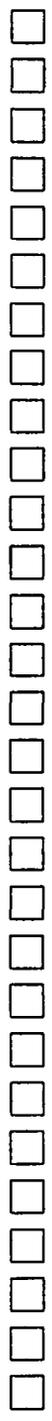
- Two-phase generic communication approach:
 - ◆ Bulletin
 - ◆ Generic Letter
- Providing guidance to industry:
 - ◆ Regulatory Guide
 - ◆ Evaluation Methodology Guidance
 - ◆ NRC-Sponsored Research

Electrical Grid Reliability

- Offsite power system assumptions used in licensing reviews may be challenged by the existing environment
- August 14, 2003 blackout has raised concerns regarding GDC 17 and station blackout rule
- NRR is reviewing concerns regarding grid reliability for short term and long term actions
- Staff will be requesting ACRS review of recommended actions

New Reactors

- Continued need for ACRS assistance on:
 - ◆ AP1000
 - ◆ ESBWR
 - ◆ ACR-700
 - ◆ Early site permit reviews
- Benefits of early engagement on issues
- Appreciate ACRS schedule flexibility



Summary

- Tackling diverse issues in rapidly changing environment
- Using PBPM process; meeting goals
- Ensuring safety is primary goal
- Looking for efficiency improvement opportunities



ACRS/ACNW Joint Meeting with EDO and Program Office Directors

Martin J. Virgilio

Director NMSS

March 05, 2004



OVERVIEW

- Policy & Planning
- Top Issues in Next Two Years
 - High-Level Waste
 - Decommissioning
 - Transportation
 - Risk-Informing NMSS



Policy & Planning

- Recent Meetings to Improve Productivity
 - Value-Added
- Forecasting & Scheduling
 - Rolling calendar
- Pre-decisional Topics



High-Level Waste

- Risk Baseline Report
- Risk-Informed Inspections
- Igneous
- Other Pre-Licensing Activities



Decommissioning

- Risk-Informed, Performance-Based Approach
- Future Briefings (planned)
 - License Termination Rule Implementation
 - Intentional Mixing of Soil



Key Transportation Issues

- Package Performance Study (RES)
- Emerging Technical Issues
 - Moderator Exclusion
 - Burnup Credit
 - High-Burnup Fuel



Risk-Informing in NMSS

- Risk-Informed Decision Making (RIDM) Guidance
 - Consideration of risk guidelines in decisions
 - Quality of risk assessments
 - Balancing risks against other traditional factors important to the Commission
- NMSS Risk Guidelines
 - Defining Population at Risk
 - Worker Risk Guidelines
- Emergent Risk-Informing Activities



Summary

- Success in Policy & Planning
- Challenging Issues in Next Two Years
- Risk-Informed, Performance-Based Approaches