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NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

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COMMITTEE ON REACTOR
SAFEGUARDS (ACRS)

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

MARCH 2, 2000

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This transcript had not been reviewed, corrected and edited and it may contain inaccuracies.

1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION
3 ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

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5 MEETING: 470TH ADVISORY COMMITTEE ON REACTOR SAFEGUARDS (ACRS)

6
7 U.S. Nuclear Regulatory Commission
8 11545 Rockville Pike
9 Room T-2B3
10 White Flint Building 2
11 Rockville, Maryland
12 Thursday March 2, 2000

13 The above-entitled committee met, pursuant to
14 notice, at 1:02 p.m.

15 MEMBERS PRESENT:

16 DANA A. POWERS, ACRS Chairman
17 GEORGE APOSTOLAKIS, ACRS Vice-Chairman
18 THOMAS S. KRESS, ACRS Member
19 MARIO V. BONACA, ACRS Member
20 JOHN J. BARTON, ACRS Member
21 ROBERT E. UHRIG, ACRS Member
22 WILLIAM J. SHACK, ACRS Member
23 JOHN D. SIEBER, ACRS Member
24 ROBERT L. SEALE, ACRS Member
25 GRAHAM B. WALLIS, ACRS Member

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P R O C E E D I N G S

[1:02 p.m.]

CHAIRMAN POWERS: The meeting will now come to order. This is the second day of the 470th meeting of the Advisory Committee on Reactor Safeguards.

During today's meeting, the Committee will consider the follow: Technical components associated with the revised reactor oversight process; nuclear power plant license renewal application; proposed final amendment to 10 CFR 50.72 and 50.73; proposed final Revision 3 to Regulatory Guide 1.160; assessing and managing risk before maintenance activities at nuclear power plants. We will also discuss proposed ACRS reports.

The Committee met with Commissioners between 9:30 and 12:00 noon today in the Commissioners Conference Room, One White Flint North, and discussed items of mutual interest.

The meeting is being conducted in accordance with provisions of the Federal Advisory Committee Act.

Mr. Howard Larson is the Designated Federal Official for the initial portion of the meeting. We have received no written statements or requests for time to make oral statements from members of the public regarding today's session.

Transcripts of portions of the meeting are begin

1 kept, and it is requested that the speakers use one of the
2 microphones, identify themselves, and speak with sufficient
3 clarity and volume so that they can be readily heard.

4 Before we initiate the discussions, do any members
5 have any comments that they want to make at the opening of
6 the meeting?

7 [No response.]

8 CHAIRMAN POWERS: Seeing none, I think we can
9 proceed then with our agenda. The first topic that we're
10 going to discuss is the technical components associated with
11 the revised reactor oversight process.

12 Mr. Barton, I believe you're going to direct our
13 process through this most interested topic.

14 MR. BARTON: Thank you, Mr. Chairman. The purpose
15 of today's session is to continue dialogue with the staff
16 regarding the revised oversight process, and I think,
17 specifically discuss preparedness for rolling out the
18 process for the initial implementation program, and also
19 some discussion on the significant determination process
20 which we didn't have time or weren't ready or something to
21 discuss the last time we met with the staff.

22 So at this point, I'll turn it over to the staff.
23 Who's got the lead? Frank, do you want to say anything?

24 MR. GILLESPIE: No, it's Bill's.

25 MR. BARTON: All right, Bill, you've got it.

1 MR. DEAN: Good afternoon, gentlemen. I'm Bill
2 Dean, the Inspection Program Branch Chief from NRR. And
3 with me today are Alan Madison and Doug Coe from my staff.

4 We're here to talk to you about exactly what Mr.
5 Barton addressed. Basically this is a continuation of our
6 February 3rd meeting where, basically, we were only able to
7 get through the performance indicator portion of the
8 discussion.

9 So we wanted to pick up where we left off and talk
10 to you about the significance determination process.

11 I would like to mention a few things that have
12 happened in the interim. Of course, we have developed and
13 submitted our Commission paper, SECY 0049, to the
14 Commission, which I believe you all have copies of, and
15 hopefully you've had a chance to start to peruse that
16 document.

17 That certainly provides what we believe the basis
18 is for why we feel that going forward with initial
19 implementation in the near term is the right thing to do.

20 CHAIRMAN POWERS: Why is that?

21 MR. DEAN: Well, there are a number of reasons.
22 Of course, we watch with interest, your presentation to the
23 Commission today, and some of the comments that the
24 Commissioners made in the closing remarks, I think are
25 pretty much in line with where we believe we're coming out,

1 based on the results of the pilot program.

2 And that is that the pilot process allowed us to
3 learn a number of issues regarding the efficacy of the
4 revised oversight process. It allowed us, during the course
5 of the pilot program and in the interim between the end of
6 the pilot program and now, to make appropriate changes and
7 modifications to the process and improvements that would
8 allow us to be able to enter into the next phase, which is
9 basically -- and I think Commissioner Merrifield kind of
10 described it best; that really it's an expansion of the
11 pilot process to 103 plants.

12 You know, we believe that we've learned enough
13 information that gives us a good comfort level that this
14 program is an improvement in all the areas that the
15 Commission directed us to improve in, and I think that we've
16 demonstrated that.

17 I think we have also demonstrated some areas that
18 we need to continue to monitor closely and gather additional
19 information in, and that after the course of the first year
20 in implementing this process at all 103 sites, it will give
21 us the added information that we need to do to better refine
22 this program and get it closer to the perfection that
23 Commissioner Merrifield noted; that this was not a perfect
24 process.

25 It was not expected to be a perfect process. It

1 is a much improved process, but, obviously, there is going
2 to be continued improvements that will be needed.

3 CHAIRMAN POWERS: You said 103 sites.

4 MR. DEAN: Plants.

5 CHAIRMAN POWERS: Is this being applied anywhere
6 besides nuclear power plants?

7 MR. DEAN: No, I meant plants.

8 CHAIRMAN POWERS: Okay.

9 MR. DEAN: Sorry. We do appreciate the
10 endorsement that we heard regarding your belief, universal
11 belief that this is an improved process.

12 But we also recognize that we may continue to
13 agree to disagree on certain aspects of the program, and
14 that perhaps more effort is needed on the part of the staff
15 to either continue to discuss certain issues or aspects of
16 the program with the Committee or individual members, and
17 certainly we're willing to do that.

18 Before we get started, I do want to note one thing
19 in terms of schedule. I know that you also have other parts
20 of this afternoon to listen to other presentations, but we
21 do have a briefing for the Chairman at 3:00 this afternoon,
22 so hopefully we can adhere pretty closely to the schedule.

23 CHAIRMAN POWERS: Oh, we've got him where we want
24 him now. Let me ask you a question.

25 MR. DEAN: Yes, sir.

1 CHAIRMAN POWERS: When you presented last time, a
2 document that had a series of questions posed about the
3 pilots, and then you got a grade from some people that did
4 some grading for you on that, in many cases you got an
5 incomplete.

6 And the answer was that I can't answer whether
7 this criterion had met; the thing didn't go on long enough.
8 Have you had a chance to get back to your graders and say
9 now we're going to go in to this second phase where we have
10 a pilot involving 103 plants, and ask them, how long does
11 this have to go on before you can give us something besides
12 an incomplete? Either pass us or fail us.

13 MR. DEAN: I believe -- I think the Commission
14 paper addresses that as part of the rationale for moving
15 forward into initial implementation, but also recognizing
16 the fact that after a year of initial implementation, we
17 need to do a thorough self-assessment, much like we've done
18 in the pilot program, and report back to the Commission
19 again.

20 And that would incorporate getting feedback from
21 all of our stakeholders, much as we did in the pilot
22 program, soliciting public feedback, industry feedback,
23 internal stakeholder feedback, on, you know, now that we've
24 experienced a year of this process, you know, what does that
25 tell us about, for example, some of the issues where, you

1 know, there is still some discomfort out there about the
2 capabilities of this process to do certain things that
3 people believe it should.

4 And, you know, it's having the chance to
5 experience this process over the course of the year. Does
6 that help in that regard? Has that helped to alleviate some
7 of the concerns in that area?

8 I think a lot of the discomfort or concerns on the
9 part of both internal and external stakeholders about this
10 process, a lot of it is based on just not having enough
11 experience with enough diverse plant performance issues to
12 be able to really feel fully comfortable with it.

13 And that's what we hope this initial
14 implementation phase will do; it will allow us to gather
15 additional insights from a wider spectrum of plants and
16 different performance levels and performance issues, so that
17 we can fully exercise all aspects of the process.

18 Okay, what we'd like to do with respect to the
19 agenda, is spend most of the time hopefully talking about
20 the significance of termination process, and Alan and Doug
21 will take the lead on that.

22 I do have some discussions, hopefully at the end,
23 on some future initiatives, and perhaps update you a little
24 bit. There were some questions, for example, today, on
25 performance indicator thresholds.

1 And one of the things we've done over the past few
2 weeks is take a look at the historical information that we
3 gathered from all plants from the submittal in late January.
4 And that has allowed us to gain some further insights about
5 some of those thresholds.

6 And we have made some adjustments or plan on
7 making some adjustments to some of those thresholds on a
8 going-forward basis. So, hopefully at the end, we'll have
9 some time to talk about that.

10 Otherwise, unless there is any other further
11 question, I'd like to turn it over to Alan and to Doug to
12 start talking about the significance of the termination
13 process.

14 MR. MADISON: Good afternoon. This is a brief
15 overview of the significance of the termination process.
16 And as has been mentioned before, it's really not just one
17 process; it's multiple processes.

18 And I'm sure we'll get to the details that are of
19 interest to you, based upon your questions.

20 But just to review, the principal objective of the
21 significance determination process was first in characterize
22 the significance of findings, to provide a relatively simple
23 tool to provide to inspectors so that they could make an
24 approximation within an order of magnitude of the
25 significance of inspection findings.

1 We realize that we've said before that it is more
2 difficult than the processes they've used in the past, from
3 their engineer expertise to determine what the significance
4 of characterizing a finding, but it's not quite as difficult
5 as doing a PRA analysis.

6 There are some shortcuts and we can discuss some
7 of those if you wish. But it uses similar risk metrics to
8 what were used to determine the thresholds the performance
9 indicators.

10 And therefore we have a way of correlating the
11 significance of inspection findings to crossing the
12 threshold in the performance indicators.

13 DR. WALLIS: I don't quite understand. What
14 metric are you using? The PI seems to me to be in different
15 plane from the usual risk metrics.

16 MR. MADISON: For the yellow, the white/yellow,
17 and the yellow/red thresholds on all the performance
18 indicators --

19 DR. WALLIS: There is a PRA.

20 MR. MADISON: -- are set at Delta CDF, the metric
21 for --

22 DR. WALLIS: The green/white?

23 MR. MADISON: The green/white threshold is set at,
24 as we've talked about in the past, to identify outliers.
25 However, we've done just a gross check to make sure that we

1 are within the vicinity of a threshold of 10 to the minus
2 six, and we're still pretty close there.

3 DR. WALLIS: Ten to the minus five in Appendix H.
4 It's not ten to the minus six?

5 MR. MADISON: Ten to the minus five is your
6 white/yellow.

7 DR. WALLIS: But that's what it says in Appendix
8 H.

9 DR. SHACK: It's a typo.

10 DR. WALLIS: It's a typo? Because I have been
11 puzzled by that/

12 MR. MADISON: It must be a typo if it actually
13 says that in Appendix H, because the intent was 10 to the
14 minus five for the white/yellow, and --

15 DR. WALLIS: It also says for white/green, which
16 really puzzled me, because it's the same number. Anyway --

17 MR. MADISON: It was meant to be 10 to the minus
18 six. Now, of course, that's not possible with some of the
19 non-reactor thresholds, because you don't have as clear a
20 correlation to risk as you do with the reactor safety.

21 DR. WALLIS: I think you really need to clarify
22 this typo, if it is a typo.

23 MR. MADISON: That should be clarified with the
24 new information that we have out on the significance
25 determination process. And it also will be incorporated

1 into the procedures that have been written to describe the
2 significance determination process.

3 CHAIRMAN POWERS: In your viewgraph, you say with
4 similar risk metrics. Does that mean that there is no
5 significance in the determination process associated with
6 findings in connection with security and safeguards?

7 MR. MADISON: I'm afraid I don't understand the
8 question. We have a significance determination process for
9 safeguards issues that uses relative risk, and then goes
10 into the reactor safety SDP to actually correlate it to
11 change in core damage frequency.

12 CHAIRMAN POWERS: But we don't have any --

13 MR. MADISON: But in the inspection finding arena,
14 we have what we think are relative significance in a
15 qualitative manner from one inspection finding to another.
16 If you have an inspection finding in the reactor safety
17 arena and a white inspection finding in the safeguards area,
18 they should have the same qualitative significance.

19 And we have tested that through doing feasibility
20 reviews on each of these where we have involved the staff,
21 as well as industry.

22 CHAIRMAN POWERS: But I have not seen something
23 that tells me here's how I think I got to the idea that this
24 white finding in the safeguards area is relatively the same
25 as this white finding in initiators.

1 MR. MADISON: And that's because we haven't
2 written about it yet. You haven't read that part, but we've
3 done that, in doing, as I mentioned, feasibility reviews on
4 each of the significance determination processes.

5 And the one on the safeguards significance
6 determination process was just recently completed, so that
7 report is not out.

8 But that was the objective, and actually that was
9 one of the clear criticisms that we received in the
10 lessons-learned meeting on the week of January 10th; is that
11 that wasn't transparent to industry or to the public, that
12 there was that correlation; that a white or red finding in
13 safeguards was the same in EP as it was in reactor safety.

14 And so we tried to make that correlation clear,
15 and by doing the feasibility reviews on each of those, we've
16 tried to validate that, that that is, indeed, the case.

17 CHAIRMAN POWERS: It remains obscure to me.

18 DR. SHACK: What is the basis for that? It's an
19 expert opinion thing? You get a bunch of industry people
20 and NRC people in?

21 MR. MADISON: With the exception of when you go
22 beyond white in the safeguards area, and when you go from
23 the fire protection. Those both feed into the reactor
24 safety SDP, and so there is a clear tie to each of those.

25 I didn't bring the diagram. I don't know if you

1 have the diagrams for the new, but they are in, I think
2 they're in the document, the new SDPs for both safeguards
3 and fire protection.

4 They clearly feed directly into the reactor safety
5 SDPs, so that if there is areas of concern or issues of
6 concern, the issue is characterized finally through the
7 reactor safety SDP. So you get the same tie, the same equal
8 tie there.

9 CHAIRMAN POWERS: I have a document that described
10 the SDP, and, in particular, for fire. Has that changed?

11 MR. DEAN: Yes. We're developing, as part of the
12 guidance documents that we're developing for implementing
13 this program, we're developing an inspection manual chapter
14 on the significance determination process which will provide
15 all the information associated with all of the various
16 processes that we use for determining significance.

17 And it will incorporate all of the lessons learned
18 and revisions that have been taking place over the last
19 several months as we've refined those based on lessons
20 learned.

21 And the fire protection one is one that we have
22 tested out, as a matter of fact, over the last several
23 months. We've had a couple of issues at several plants that
24 have allowed us to gain some insights, as well as in the
25 meeting we had February 15th and 16th with NRC and industry

1 to talk about fire protection.

2 So we're in the process of revising that.

3 MR. MADISON: I can tell you the major changes on
4 the fire protection SDP. We tried to clarify that that was
5 a feed into the reactor safety SDP.

6 The output of the fire protection SDP goes into
7 the reactor safety SDP. That was one change. I wasn't
8 clear. That was the intent all along, but I wasn't very
9 clear in the procedure.

10 And there -- what we also tried to do is show that
11 the input to that SDP should be the same as the input to any
12 other SDP. Whatever comes out of the Guidance in 0610* as
13 far as describing the threshold for findings.

14 CHAIRMAN POWERS: Let me exercise memory a little
15 bit on what that SDP process is. I have to go in and make
16 an assessment on whether the degradation in the fire
17 suppression capability, both manual and hardware-wise, has
18 been degraded significantly, a medium amount, or not very
19 much.

20 And from that I derive a parameter. Is there
21 something that tells me what a lot of degradation is versus
22 a medium amount of degradation, versus very little
23 degradation?

24 MR. MADISON: There are some concepts that are
25 incorporated in the training that the inspectors receive in

1 that area, yes.

2 And let me add this, too: That portion of the
3 procedures is actually to be used only during the triennial
4 inspection or by a fire protection safety engineer. The
5 screening portion of the tool is designed for the resident
6 staff and the normal inspector, Regional Inspector that
7 would go out to the site and identify small issues out at
8 the site.

9 So the expertise is available at the time when the
10 finding -- to come to that type of conclusion.

11 MR. DEAN: But I think to answer your question
12 more specifically in terms of criteria that say what is low,
13 medium, and high, that's one of the issues that we have
14 identified in using the significance determination process,
15 and that's one of the areas that we do have to improve in
16 terms of providing --

17 CHAIRMAN POWERS: It's totally capricious and
18 arbitrary right now.

19 MR. MADISON: It could be.

20 CHAIRMAN POWERS: And having done that, if I
21 succeed in doing that, I find I'm given a parameter. And I
22 take that number and I add it. It says to the frequency of
23 fires, but I think you really mean the logarithm to the
24 frequency of fires.

25 And where did that parameter come from?

1 MR. MADISON: From EPRI studies.

2 CHAIRMAN POWERS: EPRI studies? Okay, so this
3 comes out of five?

4 MR. MADISON: Yes.

5 CHAIRMAN POWERS: Ah, now I understand better,
6 thank you.

7 MR. MADISON: We had a long discussion over where
8 a lot of those numbers come from on the -- during the 15th
9 and 16th workshop with industry and the public.

10 And J.S. Hyslop was very good at describing that
11 and defending his terms to the point where industry was
12 accepting of the numbers that were in there, the relative
13 significance of those numbers, although they did express
14 concern about the age of those numbers, that some of those
15 numbers were quite old and that maybe new studies should be
16 done to update those numbers.

17 CHAIRMAN POWERS: You've got -- the industry funds
18 a research program attempting to better develop fire risk
19 assessment capabilities. Why don't you use that?

20 MR. MADISON: We took that as a point to look at.
21 There are a couple of phases. I guess part of what we
22 wanted to do was to try to describe, just basically, the
23 significance determination process as far as the phases of
24 the significance determination process.

25 And with that, I wanted to use the next slide. It

1 talks about Phase 1, 2, and 3 of the process.

2 Phase 1 is more of a screening device where the
3 issues that are identified by the inspector. And there are
4 some questions that the inspectors ask to clearly identify
5 or represent whether or not this is a very low
6 risk-significant finding, or does it have the potential be a
7 higher risk-significant finding?

8 If it doesn't have any potential to be a high risk
9 significance finding, then it is colored as green. It is
10 directed to the licensee's Corrective Action Program and
11 documented in the report. If it is, then it goes to the
12 Phase 2 screening, which is more complicated.

13 CHAIRMAN POWERS: Here's the step that I never
14 really could understand from the description of this
15 process. Suppose I have a finding that affects both the
16 containment barrier and the RCS barrier?

17 MR. MADISON: It automatically goes to a Phase 2
18 review. If it affects more than one cornerstone it
19 automatically goes to a Phase 2 review.

20 CHAIRMAN POWERS: Okay, so does it go through both
21 of these little flow paths here?

22 MR. MADISON: No, you go straight to the Phase 2
23 review or if it affects both the barrier -- we would look at
24 both of those, that's correct. We would look at all the
25 action scenarios and we would try to pick -- not try to, we

1 would pick the most conservative call.

2 CHAIRMAN POWERS: You might want to make that
3 clear in the documentation, because you make heavy use of
4 this kind of flow chart in the description of the
5 significance determination process. That is the one that
6 just hits you immediately is -- even some of your examples.
7 You even have an example in there, I think, where it affects
8 two or more cornerstones, and it doesn't tell me in the flow
9 chart what do I do.

10 MR. MADISON: You do both.

11 CHAIRMAN POWERS: You go through both?

12 MR. MADISON: You do both and you take the highest
13 call.

14 CHAIRMAN POWERS: I was pretty sure that you went
15 with the highest one, but it didn't say that.

16 DR. WALLIS: You say "we" -- who is "we" when you
17 say "We" do these things?

18 MR. MADISON: The inspector does this.

19 DR. WALLIS: The inspector does all of this?

20 MR. MADISON: The Phase 2 review is done by the
21 inspector. During the initial implementation phase there
22 will probably be necessary for the regional SRAs to help out
23 in some cases, although the inspectors have received
24 training on this.

25 DR. WALLIS: The inspector has enough knowledge to

1 run the PRA and make these --

2 MR. MADISON: Doesn't have to run a PRA --

3 DR. WALLIS: -- run the licensee's PRA?

4 MR. MADISON: The work sheets provide kind of a
5 quick method for him to estimate the risk --

6 CHAIRMAN POWERS: The prebuilt sheets are pretty
7 clear, I think.

8 MR. MADISON: It's plug and chug in a lot of
9 cases.

10 CHAIRMAN POWERS: Well, I think that overstates
11 it. I don't think it is plug and chug.

12 MR. COE: We don't want it to be plug and chug.
13 We want it to be a thinking process that entails the
14 accumulation of risk insights. That is what we want the
15 inspector to gain as well as an answer.

16 MR. SIEBER: Are these work sheets plant-specific?

17 MR. MADISON: Yes, they are. We were going to
18 talk about that in a little bit.

19 MR. SIEBER: That's the work sheets you have been
20 sending to plants --

21 MR. MADISON: That's correct.

22 MR. SIEBER: -- for right now.

23 DR. APOSTOLAKIS: What is the logic of the sheets
24 being plant-specific and the thresholds not?

25 MR. COE: The logic is that we are trying to

1 assess an affected accident sequence, what the remaining
2 capability is if you take away -- if you assume
3 automatically some of the capability is already removed
4 because of the problem that you found, so we have to judge
5 for that particular plant how many other mitigation systems
6 are needed to get to core damage that will remain for that
7 sequence, and that is how we try to determine --

8 MR. MADISON: And the sheets are going to walk you
9 through that.

10 MR. COE: And again it's a rough, it's an
11 approximation within an order of magnitude so we are not
12 drawing a bright line. The thresholds are not -- as you
13 said, they are a fuzzy line. They are not a bright line.

14 DR. APOSTOLAKIS: Well, this analysis is
15 plant-specific.

16 MR. MADISON: Pardon?

17 DR. APOSTOLAKIS: This analysis will be
18 plant-specific?

19 MR. MADISON: Yes, based upon plant-specific
20 information and within the limitations of what is
21 represented on the work sheets.

22 DR. APOSTOLAKIS: All right.

23 CHAIRMAN POWERS: One of the things I didn't
24 understand about the work sheets, I got the impression if we
25 were to look, say, 10 years from now that it might well be

1 that work sheets were actually made by the inspector
2 himself, rather than supplied. Is that the case?

3 MR. MADISON: That is not the intent, no.

4 DR. APOSTOLAKIS: Now if you have a model of the
5 plant that maybe comes from the IPE with some improvements
6 and so on, on the Sapphire code would that be an appropriate
7 model to run to see this, the remaining protection?

8 MR. COE: It could be, and we would hope that if
9 the SDP indicated that there was a potentially
10 risk-significant situation that had been identified that if
11 there was any value in doing those further detailed studies
12 we would want to do that, and we have set aside --

13 MR. MADISON: It's likely going to fall though
14 into the Phase 3 review and not necessarily in the Phase 2
15 review. The Phase 2 review is more to identify with a
16 conservative call whether or not there is significant risk
17 characteristics with an inspection finding, to then increase
18 the dialogue if necessary with the licensee.

19 DR. APOSTOLAKIS: Now my understanding is that one
20 of the national laboratories is working under your
21 sponsorship, not "your" -- this particular group -- but the
22 Agency sponsorship to put on Sapphire all the IPEs that have
23 been submitted to the Agency, so now if I have a Sapphire
24 model of the IPE of the plant, why can't I completely bypass
25 these sheets and go there and --

1 MR. MADISON: There's some advantages to having
2 these work sheets rather than just having just a computer
3 model where you do really plug and chug. You plug a number
4 in and it spits out a number. Doug will be one of the first
5 ones to tell you this. It actually forces the inspector to
6 think about what is important at his site, what are the
7 important characteristics of that train and what are the
8 important components I should be worried about in that
9 train. It makes them stop and think about that and maybe go
10 look at those more frequently because that's where he is
11 going to find the most significant issues.

12 A computer program doesn't necessarily do that for
13 him. It is almost a training tool as well as a
14 calculational tool.

15 DR. APOSTOLAKIS: I think there is great value to
16 that. There is no question about it. You don't want just
17 to push a button and get a number out, but I think you can
18 also get similar information maybe by minimal modification
19 of the existing software.

20 MR. DEAN: Yes. I mean that's a good point and we
21 have had that discussion almost from Day One about
22 computerizing the model. I think one of the things that we
23 feel is important about the significance determination
24 process is that in order to utilize it the inspector has to
25 make some assumptions about things.

1 This process clearly calls out what those
2 assumptions are, gets those out on the table, so that the
3 NRC and the licensee can discuss the appropriateness of
4 those assumptions and whether they really are applicable or
5 not, and that is the real strength of this process.

6 CHAIRMAN POWERS: That comes across very well on
7 your documentation.

8 DR. APOSTOLAKIS: I have no -- I don't object to
9 any of this. It's just that we have had experience in other
10 situations where methods were developed for a quick and
11 convenient calculation and then they took a life on their
12 own. The precursor analysis -- there was a period of time
13 when it was advertised as being an alternative to PRA. I
14 don't think anybody in his right mind would say that now.

15 MR. MADISON: We have been very cautious. There
16 was an early attempt to utilize the SDP, by industry to
17 utilize the SDP to prioritize maintenance, and we said no,
18 stop doing that, that is not the intent, and we have said
19 and we have made it very clear to industry that its only
20 intent is as a tool for inspectors to characterize
21 inspection findings.

22 DR. APOSTOLAKIS: I think that if there is hope
23 that in the future, in the near future, these computerized
24 IPES will play an increasing role in this, I think that will
25 be a good development.

1 MR. MADISON: I think they already are in some of
2 the other aspects of the program too. If you have read the
3 discussion about event response, we initially looked at
4 utilizing the SDP to characterize events. During our
5 feasibility review we came to the conclusion that that was
6 not appropriate, that there were better tools to do that
7 characterization and they were available to the SRAs, to the
8 regions, and they should use those tools, not the SDP.

9 The SDP was still the right tool to use for
10 characterizing inspection findings, but we thought using the
11 models, the Gem model, the Sapphire, were more appropriate
12 for characterizing events.

13 DR. WALLIS: Does Sapphire come in at Phase 3
14 here?

15 MR. MADISON: The Sapphire may come in in Phase 3.

16 DR. WALLIS: Phase 3 starts after "Yes" -- that's
17 not that clear from your --

18 MR. MADISON: I beg your pardon?

19 DR. WALLIS: Phase 3 starts --

20 MR. MADISON: Phase 3 is you have made a
21 determination out of the Phase 2 --

22 DR. WALLIS: It starts at "Yes."

23 MR. MADISON: Yes, that's correct. You have a
24 determination out of Phase 2 that you have a white, yellow
25 or a red finding, and then you go into the Phase 3. Now I

1 said that it increases the communication between the
2 licensee and the inspector, because all along during Phase 2
3 there should have been communication about what are my
4 assumptions, what are the things that I am considering, what
5 was the condition of this piece of equipment in your
6 estimation at the time of the evaluation.

7 One of the other objectives, major objectives, of
8 the tool is it's a communications tool. As Bill said, we
9 lay out on the work sheets and on the report what our
10 assumptions are, what are the considerations we are making
11 during the analysis of the issue.

12 That's all out in the open. That's all part of
13 the discussion with the licensee, and it is information the
14 public and other stakeholders have to evaluate our work
15 doing the SDP.

16 DR. SHACK: You take that you miss programmatic
17 failures. You know, if I have a valve failure because I
18 have a bad maintenance program, but the valve itself is not
19 very important, I am going to end up green. But the fact
20 that I have a problem with my valve maintenance program may
21 well be significant. Do I miss that with this process?

22 DR. BONACA: I had a question, in fact, that I
23 posed last time and I don't see a change here, so I was
24 wondering if you are considering it, which goes in the
25 direction, which is, do you have a repeat event that may not

1 make it to Phase 2, but may be significant in and of itself
2 because it indicates something? For example, say that you
3 have two events, or three events, they may something about
4 the maintenance program or something else that may be
5 significant just because -- not because you meet some kind
6 of risk criterion in and of itself, but the repeat event in
7 and of itself has a significance.

8 MR. DEAN: Yes. And what you are talking about,
9 and there was some discussion of this this morning with the
10 Commission and your presentation in terms of corrective
11 action programs, or what we have characterized as the
12 cross-cutting area of problem identification and resolution.
13 And one of the reasons why we have embedded into the
14 oversight process, to the baseline inspection program a
15 substantial element of looking at the licensee's problem
16 identification and resolution performance, and that
17 incorporates in each inspectable area some element of that
18 effort should be looking at licensee's efforts and problem
19 identification and resolution, as well what we have right
20 now, which is an annual inspection to look at problem
21 identification and resolution activities, with the annual
22 inspection probably focusing more on corrective action,
23 extent of condition type activities.

24 Whereas, in the inspectable areas, you are
25 probably looking more at, how well is the licensee doing

1 problem identification? Are they identifying issue in that
2 particular area and getting those in a corrective action
3 program.

4 DR. BONACA: You see, I think that this belongs
5 right here. You have a box with corrective action program
6 there. If your corrective action program cannot deal with
7 events that repeat themselves time and time again, this
8 reliance on the box becomes meaningless. I mean you have a
9 chart here. I would like to see inspection issue involved
10 in the condition, the first box. Does the issue clearly --
11 and you have a "yes" down. The next question is -- is this
12 a repeat finding?

13 MR. DEAN: Yes. And what I was going to get is
14 one of the elements of the annual inspection is to look at,
15 for example, what has been in the licensee's corrective
16 action program and in addition to what we have see through
17 our inspection findings over the course of the previous year
18 or so in terms of what sort of issues have emerged that have
19 been characterized with some significance. You know, green
20 issues are not good issues, they are issues of very low but
21 some risk significance.

22 Do we see any patterns or trends? That is one of
23 the purposes of doing that annual inspection is to look for
24 patterns and trends and to look at see what the licensee is
25 doing in terms of evaluating the body of information in

1 their corrective action program to see if they indeed
2 recognize if there is any patterns or trends.

3 DR. BONACA: But this is the Significance
4 Determination Process. Anything which is not identified in
5 the Significance Determination Process is, by definition,
6 not significant, it seems to me. I mean, to me, in a risk
7 analysis scenario, although it may not be quantifiable,
8 repeat events have significance. Okay.

9 We may not be able to quantify them. But the fact
10 that you have, you know, misalignment after misalignment
11 after misalignment is significant issue from a risk
12 standpoint.

13 MR. DEAN: And we would believe that if you have
14 misalignment after misalignment, then you are talking about
15 impacting things like safety system availability. You are
16 going to have unplanned availabilities.

17 DR. BONACA: Other systems.

18 MR. DEAN: And, so, a basic premise of this
19 program is that if you see programmatic breakdowns in areas
20 like valve maintenance or things like that, then they will
21 evince themselves in either issues that will be captured
22 through increasing trends in the performance indicators, or
23 we will come up with a number of inspection findings, some
24 of which may trip a risk significance threshold, or which
25 there may be an accumulation over time that would cause us

1 to identify a trend or pattern.

2 And, so, you know, this --

3 MR. MADISON: The finding is still identified as
4 green. It is still identified, it is documented in a report
5 and it is required to be addressed by the licensee's
6 corrective action program.

7 But I will say this, this is something we are
8 watching closely during initial implementation. We have a
9 working group set up to look at the problem identification
10 resolution, actually, all cross-cutting issues, but focus
11 first on problem identification resolution issues. And we
12 will be looking at this and making sure that the initial
13 assumptions we are making with the program, the premises of
14 the program, are valid.

15 DR. BONACA: Yes.

16 DR. SHACK: That is the majority conclusion that
17 that hasn't been tested yet.

18 MR. DEAN: That's correct.

19 DR. BONACA: Yes. And, again, I suggest you look
20 at this fact because this says, this is the safety
21 Significance Determination Process.

22 MR. DEAN: Yes.

23 DR. BONACA: And, so, I think you have to look at
24 all the aspects, because, by definition, since you have put
25 the definition here, that is -- you know, anything which is

1 not here is not being considered.

2 MR. DEAN: I guess not to be too much longer on,
3 you know, repeat issues, you know, in our enforcement
4 process, under the current oversight program, you know, that
5 is one of the things that we look at, but that is something
6 that we also struggle over. You know, what is the time
7 period between one issue occurring and another issue
8 occurring that that really is a repeat issue? And are there
9 different aspects about the issue that really it is a
10 different element that caused this issue to occur?

11 And, so, that is an issue that we struggle over a
12 lot in the current process in determining, you know, is this
13 really a repeat issue or not?

14 DR. POWERS: Did I get an answer to Dr. Shack's
15 question about, do you catch programmatic failures?

16 MR. DEAN: Well, I guess in kind of a long-winded
17 way. I think what we tried to get across was that we
18 believe that if there are programmatic issues that affect
19 equipment or activities of risk import, that you should see
20 that over time evince itself in thresholds being crossed.

21 Now, is this something that has been proven out?
22 It hasn't. I think it is something that we certainly
23 recognize in the Commission paper, that this is something
24 that, you know, time will really tell, and is one of the
25 motivators really for getting into initial implementation

1 and getting more plants involved so that we can hopefully
2 prove out the theorem that we believe that this process has
3 embedded in it, that we will see those programmatic issues
4 emerge and thresholds being crossed and significant issues.

5 MR. MADISON: But his question was, do you miss
6 the programmatic findings? No, you don't miss the
7 programmatic findings because the programmatic findings have
8 an impact. They can be measured through the SDP and if they
9 come -- they will come out at least green, if they get into
10 the SDP. And, again, they are documented, they are
11 identified and they are required to be corrected by the
12 licensee.

13 We are, as we mentioned earlier, the process
14 relies on the site -- the reactor safety process relies on
15 site-specific work sheets, and they are being developed for
16 each of the plants. As you mentioned, we will be mailing
17 them out to the sites.

18 We are planning on making visits out to each site,
19 and the SRAs from the Region will also be supporting Doug,
20 and others from headquarters will be going out to each site
21 and validating that the information is correct, because the
22 information originally was based on old IPE submittals and
23 there may have been some major changes. But it would have
24 to be a fairly significant change to the facility because of
25 the conservative and the fairly simple nature that the work

1 sheets do. So if they added a diesel generator that wasn't
2 incorporated into the program, then we will have to make a
3 change to the work sheet.

4 DR. POWERS: Yeah, that would change the work
5 sheet. Yes.

6 MR. MADISON: And we will do that. We actually
7 have learned some good insights in going out and doing this
8 during the pilot. We found out some non-conservative calls
9 we were making with regard to turbine-driven pumps versus
10 electrical driven and we made some changes to the program
11 based upon that review. So it has been a real good review.

12 DR. POWERS: If I was real nice, maybe didn't ask
13 any more questions, could I get the copy of the work sheets
14 for Davis-Besse.

15 MR. SIEBER: It is in ADAMS, I saw it.

16 MR. MADISON: It should be no problem.

17 DR. POWERS: That is the question I asked, I asked
18 could I get a copy of it.

19 [Laughter.]

20 MR. MADISON: Yes. You will get a copy. Anybody
21 else?

22 DR. UHRIG: Do you have training?

23 MR. MADISON: We do have a course for the
24 inspectors that we are training them on called G-200 that
25 talks about the entire process, but it focuses at least a

1 full day on the Significance Determination Process where
2 they do examples of both BWRs and PWRs, some actual examples
3 from the field.

4 DR. POWERS: I would think, having looked at your
5 example sheets, that if I were an inspector I would be
6 pretty enthusiastic about those sheets. Is that -- have you
7 got in --

8 MR. COE: Initially, there was some, you know,
9 kind of the initial shock of, oh, gosh, I have got to figure
10 out this whole new system. But we found I think that after
11 they do a few examples, they begin to see how it all comes
12 together, it becomes an interesting tool that really allows
13 them not only to get an answer but to see the relative
14 influence of the various assumptions that they make, and the
15 influence of changing those assumptions.

16 DR. POWERS: Yes, I think that certainly comes
17 across nicely in your documentation. That is one thing you
18 don't need to change in the documentation, just what you
19 say. Laying the assumptions down and seeing that they have
20 an influence on the answer you get was nicely done.

21 MR. COE: Right.

22 MR. MADISON: Again, I mentioned this earlier, I
23 just want to highlight it again, we have done -- we did a
24 feasibility review on the initial development of the SDP,
25 that was documented in 007A. But we have since done a

1 second feasibility review that was tied to the event
2 response on the reactor safety SDP, that is documented in
3 049 that you have before you.

4 We have done feasibility reviews on all of the
5 SDPs, which have involved our staff running through real
6 examples from the field, in some cases with, for example,
7 the safeguards SDP, as many as 30 or 40 examples that were
8 run concurrent with staff and industry to make sure that we
9 were coming out with a similar answer, at least understood
10 where our differences if we came out with difference
11 answers. We feel fairly comfortable that was a good test at
12 least at the beginning of the process for each of the SDPs.

13 Ongoing work, as I mentioned earlier, we need to
14 continue to do the site visits to make sure that we have
15 consistent application of the work sheets.

16 There we go. We expect to continue work on those
17 through May of this year to try and complete those. We are
18 getting them in a little slower than we had expected from
19 our contractor but we are mailing them out to the licensees
20 as soon as possible and then to our Staff so that they get
21 them right away and then we will follow up with site visits
22 and try to complete those.

23 We have developed a containment significance
24 determination process that we feel at least at first blush
25 after the first read looks pretty good. It is tied to a

1 change in LERF, delta LERF, and then ties back into the
2 reactor safety SDP, the existing one.

3 We expect to do a feasibility review of that with
4 the Staff at least the week of the 13th of March.

5 We have a shutdown screening tool that also seems
6 to show promise and we are going to try to do a feasibility
7 review of that the same week. We think both of those should
8 be ready to run some time early in April, to actually
9 implement into the new process and watch them closely again
10 as we are with this whole process, but those especially.

11 One of the lessons learned that came out of the
12 workshop, the January 10th workshop and actually before,
13 through the pilot program, was that external events weren't
14 well taken care of within the significance determination
15 process. As sort of a stopgap measure we're developing an
16 external events screening tool to look for where external
17 events may be a significant impact at individual sites and
18 to flag those sites then for extra effort by the SRAs and
19 Headquarters staff when issues are identified there to
20 ensure that external events didn't play a large part in that
21 issue.

22 CHAIRMAN POWERS: When you use the term "external
23 events" here, are you distinguishing them from fire events?

24 DR. BONACA: No.

25 MR. MADISON: No.

1 CHAIRMAN POWERS: So fire events are included?

2 MR. MADISON: Fire events are considered an
3 external event.

4 CHAIRMAN POWERS: Think they are a peculiarity to
5 a site?

6 MR. MADISON: Yes -- to the best of our knowledge
7 they are. Again, this is something we are looking at. We
8 are going to continue the process of developing corrections,
9 necessary corrections to all the SDPs to incorporate these
10 lessons of external events issues into all the SDPs but that
11 is going to be some time beyond April.

12 With that, we get into the changes that we have
13 made, if there aren't any other questions on the SDP.

14 CHAIRMAN POWERS: I would like to go back and have
15 a little better understanding of Phase 3.

16 MR. MADISON: Okay.

17 CHAIRMAN POWERS: My irreverent characterization
18 is that is where we find out why the industry thinks you're
19 wrong.

20 MR. MADISON: That's true. That's a good analogy.

21 DR. BONACA: You put the gloves on.

22 MR. MADISON: We told them, we laid it out for
23 them with the Phase 2. We put it in the inspection report
24 that this finding has, we think, a significance of white or
25 greater. These are the assumptions we have made. This is

1 why we think it is significant.

2 We offer the licensee the opportunity to either
3 send us information or come to a regulatory conference and
4 give us the information. In some cases we feel that there
5 may be a need that we'll request information because we
6 don't have enough information to make that final
7 determination and that will be part of the Phase 3.

8 Once we take that information in and understand
9 where their objections are, where their differences lie, we
10 make the final call on what we figure the significance of
11 the finding is, and again I revert back to what I said
12 earlier. It is not a bright line. It gets more into the
13 qualitative area of what do we think the significance is
14 based upon the best available information we have, including
15 that provided by the licensee.

16 MR. SIEBER: Now --

17 DR. SEALE: Go ahead.

18 MR. SIEBER: There is a subjective part that goes
19 into that by the regional administrator, the regional staff,
20 is that true or not?

21 MR. COE: That's true.

22 MR. SIEBER: What factors do they take into
23 account that would alter the quantitative outcome of all of
24 this?

25 MR. COE: I wouldn't necessarily say it's

1 subjective. I would say that this process does not obviate
2 the need for judgments to be made.

3 MR. SIEBER: That's better --

4 MR. COE: But what it does do, it forces the Staff
5 and it obligates the Staff to make those judgments clear so
6 their effect and influence is obvious as to how it did
7 influence the outcome.

8 If they were to deviate from the process, they
9 would have to document why they deviated from the process.

10 MR. SIEBER: Nonetheless they have the authority
11 to deviate from the process.

12 MR. MADISON: Certainly.

13 MR. COE: With justification.

14 MR. MADISON: With justification, but we also
15 during at least the initial part of, the first year of
16 implementation as we did during the pilot we have an
17 oversight group that includes Doug and myself and others
18 that we collect this information.

19 The information comes in from the field on what
20 the Phase 2 review found, and we provide kind of that
21 consistency monitor to make sure they have applied the
22 process correctly and we would have come to a similar
23 determination based upon the assumptions they made.

24 MR. SIEBER: And that is done before the
25 imposition of civil penalty or whatever else?

1 MR. MADISON: Well, there is no civil penalty with
2 the new process on things that go through the SDP, but yes,
3 it is done before it is actually documented in the report.

4 DR. SEALE: In your first year of piloting,
5 adjusting, and so on, are you going to essentially do
6 sensitivity studies by toggling the yes/no determination at
7 the end of Phase 2?

8 MR. DEAN: Well, I'm not sure. One of the things
9 we did in during the pilot program is we did an independent
10 review of all the issues that were identified by the regions
11 that were classified as at least green by the significance
12 determination process and did an independent assessment with
13 risk analysts to ascertain whether they would have come to a
14 different judgment.

15 I believe in all cases they said that they made
16 the right call. I think they felt that one of the regions
17 might have been too aggressive in one case, that they
18 wouldn't have even classified the issue as green, but that
19 is the result of I forget how many issues, Doug, sixty or
20 seventy issues?

21 MR. COE: The pilot total was about 99 issues,
22 total, in the pilot.

23 DR. SEALE: Well, you'd expect about one out of
24 that, but that's a call within your flexibility as this
25 review group too, isn't it? I mean if you see one where you

1 would like to see what happens if you took it to Phase 3 you
2 could ask for that?

3 MR. MADISON: That's true.

4 MR. COE: Yes.

5 MR. MADISON: And these oversight panel reviews
6 are fairly challenging. The individual has to come fully
7 loaded to discuss the issue at the oversight panel. We have
8 tied that now to enforcement actions, to the enforcement
9 panel, so it directly flows from the oversight of the SDP
10 into what are the enforcement aspects of that.

11 CHAIRMAN POWERS: If I am a licensee and you guys
12 have got a finding that says I have a fault right down in my
13 security and safeguards area, okay? You have got your
14 little work sheets and you told me just how we came out, and
15 I said, no, you're wrong. I have run the conflict code on
16 this particular incident and I find out there's only a delta
17 risk of loss of material of 10 to the minus 6th here. What
18 do you do?

19 MR. MADISON: I don't understand what the conflict
20 code is --

21 CHAIRMAN POWERS: Oh, that's because you haven't
22 read the literature on safeguards and security.

23 MR. MADISON: Probably -- I don't have a high
24 enough security clearance, I guess, but we as the NRC, based
25 upon the -- you know, we will have to look at our procedures

1 to see if there is any fatal flaw based upon that
2 information, but we as the NRC retain the right to make the
3 final call. That is our job.

4 But I think the first question we have to ask is
5 what is the basis for this result out of this conflict code,
6 what are the modeling assumptions, and the assumptions we
7 have made in our model -- how do they compare to ours.

8 CHAIRMAN POWERS: I could point you to 16 papers
9 in the literature of facility defense that says the conflict
10 code validated, works well, boy, this is a great code.

11 MR. COE: But that doesn't answer the question. I
12 think it's going to be the burden of the licensee in a case
13 like that to come forward and say we understand how your SDP
14 arrived at your answer but our answer is different for the
15 following valid reasons, and item by item convince us that
16 there is an alternative perspective that should supersede
17 our own.

18 MR. MADISON: One of the other reasons for doing
19 the feasibility reviews besides to verify that we were on
20 the right path with the SDPs was to ensure that industry was
21 on the same path and was on the same page with us, and
22 industry has agreed that these are the right significance
23 determination processes, that they come up with answers that
24 they can agree to.

25 We have identified issues that have significance

1 and they have agreed to the significance if characterized
2 appropriately.

3 MR. GILLESPIE: Alan, something that we also have
4 to keep in mind: Independent of what this grades it as,
5 compliance is still required. If they're in deliberate
6 noncompliance because they don't think it's important, that
7 throws us into an whole other avenue.

8 And you're outside this system, and now you're in
9 wrongdoings space. So there are other boundary conditions
10 that are fixed. So the idea that someone can have a totally
11 generation of security, and have it be a red, would be -- I
12 think that would be actually difficult to occur, unless it
13 was connected with some weird kind of event that both killed
14 all the guards they need for compensatory measures and
15 destroyed all the barriers and detection systems.

16 I mean, I'm not being -- it's just, you know,
17 probably unrealistic to think we could actually have a red
18 in security, quite honestly, without having seen something
19 earlier.

20 MR. MADISON: A red in security, unless you can
21 show a change of core damage frequency through the reactor
22 safety SDP, the highest defining security is going to
23 achieve is white.

24 CHAIRMAN POWERS: I understand that.

25 MR. MADISON: As far as significance within --

1 CHAIRMAN POWERS: I took security as an example,
2 because I wanted to understand what happens if the licensee
3 comes into this Phase III with superior technology to what
4 you have.

5 MR. MADISON: Well, I can relate to the case of
6 the Sequoia findings. The licensee continued to try to
7 bring in additional information, additional analyses, and in
8 some cases, new analyses, to prove their case.

9 We still took the position that based upon the
10 information that we had at the time, that we were making the
11 right call through the SDP.

12 MR. COE: It would be their burden to demonstrate.
13 You made the comment that the premise was that they had
14 superior technology. And I guess what that means is, a more
15 refined view, a better basis, more detail, et cetera, that
16 sort of thing.

17 And it would be incumbent upon them to demonstrate
18 to us why that is and why we should utilize those
19 assumptions, versus our own assumptions.

20 We have to be careful to be clear that anytime the
21 licensee comes forward to bring us information that would
22 influence a regulatory decisionmaking process, it needs to
23 be docketed up front, on the table, publicly available, and
24 in some cases, when they're talking about sophisticated
25 analyses, reviewed to some level of detail by our own staff.

1 So in many cases, I think we're going to find that
2 it may be that the effort, both their's and ours, to resolve
3 the question of are we white or green, may be far beyond the
4 effort needed to fix and for us to verify whatever problem
5 it is.

6 MR. MADISON: Absolutely. That was the point we
7 were trying to make to Sequoia, that they probably spent
8 \$100,000 responding to that issue that would have cost them
9 14 hours of inspection. And they had already fixed the
10 problem.

11 And the other aspect of that is, too -- and this
12 is why, again, we're not drawing a bright line -- we see no
13 difference in the significance determination process between
14 .9 and 1.1. It's the same number as far as we're concerned,
15 because it has the same relative significance.

16 MR. DEAN: I think that over time people will come
17 to appreciate the sensitivity. We have been trying to
18 promote the fact that a green issue is not a good issue, but
19 by the same token, a white issue is not the end of the
20 world.

21 And so I think that over time, as we get more of
22 these issues emerging, and these things play out, I think,
23 overall, both internally and externally, there will be a
24 greater understanding of what the various colors mean in
25 terms of risk import, and what it entails in terms of what

1 the NRC's reaction is going to be.

2 MR. MADISON: We do have some new information for
3 you. As we promised, we are going to look at the
4 performance indicator thresholds, based upon the historical
5 information submitted to us January 21st.

6 We have made some adjustments to some thresholds.
7 I don't know if you want to talk about that.

8 MR. DEAN: Yes. First of all, this is a result of
9 ongoing analysis. We took the opportunity with the
10 historical data submittal in January from all the licensees
11 to take a look at the validity, if you will, of some of the
12 thresholds that we had established on a going-forward basis
13 for the pilot.

14 I want to really emphasize the fact that if you go
15 back and look at SECY 99-007, where we talk about
16 performance indicator thresholds, we were very clear in that
17 document that these thresholds would be something that we
18 would be looking at through the pilot program, and we would
19 gather more information, and there would be some need to
20 refine these thresholds on a going-forward basis, and not
21 that we're going to, on an ongoing basis, every year, look
22 at these thresholds as industry improved performance and
23 continue to move the thresholds upward and upward.

24 Okay, but it is to establish at least on a
25 going-forward basis, for initial implementation of this

1 program, an adequate set of thresholds that do, indeed, meet
2 the stated goals, at least at the green/white threshold with
3 respect to identifying George's favorite issue, the 95
4 percentile deviation from nominal industry performance.

5 DR. WALLIS: Was the criterion for moving these,
6 the 95 percent or was it a risk-based criterion?

7 MR. MADISON: It was primarily an analysis done of
8 how many outliers we would have identified, dependent upon
9 the threshold set. In several cases, for example, the
10 scrams with loss of normal heat removal, had we left the
11 threshold at four, no licensee would have been identified
12 over a three-year period, to have crossed that threshold.

13 DR. WALLIS: So you wanted five out of 100.

14 MR. MADISON: A rough number of five. Again, you
15 know, seven is okay; three is also okay, some rough number
16 of five, an approximation of identifying the significant
17 outliers of performance, significant deviation from nominal.

18 DR. WALLIS: Well, it doesn't imply any kind of
19 risk evaluation whatever.

20 MR. MADISON: Again, we looked at that earlier,
21 and we felt that we were close with a 10 to the minus six,
22 and that was -- again provided significant safety margin.

23 DR. WALLIS: That was a small sample. The 10 to
24 the minus six was not everybody, so you may be really
25 unfairly treating some plant. We've said this before.

1 MR. MADISON: Yes, you said this before, but
2 again, we felt there is significant safety margin at the
3 green/white threshold that we have.

4 What we're trying to identify at the green/white
5 threshold are those licensees whose performance has slipped
6 to the point where we need to get more engaged. We felt
7 that was the right type of threshold, a set, of those
8 outliers, those folks that are deviating from nominal
9 performance. Those are the ones we want to focus our
10 attention on.

11 CHAIRMAN POWERS: A couple of questions come to
12 mind on this: Is there going to be at some time, a document
13 where I can go in and look at it and say, okay, here's the
14 database that they looked at and here's why they came up
15 with two. I mean, I could do the statistics myself or
16 something like that?

17 MR. MADISON: We've answered this question before,
18 because you have asked it before, and, yes. We have to
19 write that document. But, yes, that is in the plan to
20 document that during the coming year.

21 MR. DEAN: We will borrow, for example, from
22 Appendix H of SECY 9007 that goes into a lot of discussion
23 about.

24 CHAIRMAN POWERS: I hope you do it better than
25 they do, because I can't follow their logic in there. But I

1 see the numbers.

2 MR. MADISON: Maybe the same author, but we'll
3 make an attempt to do a better job with it.

4 CHAIRMAN POWERS: Let me ask one other question
5 about this: Everybody has concluded that somebody has
6 crossed the green/white threshold. And you say, okay, we've
7 got to get more engaged.

8 And so that means that you come to somebody and
9 say, okay, I need more resources and more manpower to go
10 look at Oconee, not more than we planned at the beginning of
11 the year.

12 And he says, guys, you can't do it; I've got my
13 money out, already done; you're going to have to wait till
14 next year, but we'll sure enough put it in the budget for
15 next yea and you're up.

16 MR. BARTON: That's not going to happen.

17 CHAIRMAN POWERS: The question is, are we
18 confident that the gear up to get more engaged, occurs
19 sufficiently quickly that what crossed the green/white
20 threshold will not have crossed the white/yellow threshold
21 by the time we get there?

22 MR. DEAN: That's a good question and let me take
23 a first crack at it, and then Alan or Doug can jump in.

24 I guess to real briefly talk about what the
25 supplemental inspection approach is for additional

1 inspection when a threshold is crossed -- and let's go
2 through a performance indicator. We get -- let's take --
3 we're going to get a report April 21st, okay?

4 The industry is going to give us their input from
5 the first quarter of 2000, and we'll get that April 21st.
6 It will take us about a week to get that so we can see what
7 it say.

8 We say, okay, we've got this plant here that's
9 crossed the threshold. Okay? Now, let's look at why is it
10 that they crossed the threshold?

11 Is it something simple like, well, gee, last
12 quarter, they had two additional scrams, okay? Well, that's
13 a pretty easy one.

14 Or you may have something that's a little bit
15 more, a safety system unavailability where you've got to
16 look at why was it unavailable?

17 But the purpose of supplemental inspection as you
18 cross from green to white is to allow the licensee to do
19 their root cause evaluation, root cause review, and then go
20 in and look and say does what you did make sense? Did it
21 appear that you did the appropriate extended conditions
22 reviews?

23 It's basically for us to go in there and follow in
24 behind them. So there may be some time period there from
25 the time that that PI cross the threshold, before it's the

1 appropriate time for us to do our followup inspection.

2 If you were to then cross a threshold from white
3 to yellow, the supplemental inspection there requires us to
4 be involved in more of an independent diagnostic approach.

5 So in that case, you would probably see us engage
6 a lot more quickly to capture information as to why was that
7 threshold crossed, and do more of an independent review of
8 why it is you are where you are in that stage.

9 So, do we have the case where we could shift
10 quickly from green to white to yellow over the course of a
11 couple months? I don't think so, unless you have a
12 situation where you have, for example, an important piece of
13 safety equipment that's out for a large period of time.

14 And that would have been something that would have
15 gotten our attention and the licensee's attention pretty
16 quickly anyway. So, Alan?

17 MR. MADISON: There are other aspects of the
18 program, too, that would respond to significant conditions
19 or events on an real-time basis.

20 But I think the strength of the program is that
21 you don't have to guess about what we're going to do; we're
22 telling you what we're going to do in the action matrix,
23 based upon inputs.

24 I think if the stakeholders, the public being the
25 one that we're driving that at, sees that we're not

1 following our processes, they're going to call us on that.
2 We have to justify why we've deviated from our processes.

3 CHAIRMAN POWERS: I think the take-home lesson I
4 get is that it's entirely possible that before you get more
5 heavily engaged, it could be for -- continued deterioration
6 of performance. But you don't think so? You think that
7 would be really unusual? I guess I'm content to think that
8 probably it would be.

9 MR. MADISON: I wanted to highlight some of the
10 other PI thresholds. The reasons why we changed them are
11 pretty much the same in doing the review.

12 But I wanted to mention that the safety system
13 unavailability performance indicators, we've reverted back
14 to what we initially proposed in SECY 99-007.

15 Now, we had initially changed those during the
16 pilot program to take into account, the two-week allowed
17 outage time on EAC that some licensees have. And that's why
18 we changed that from 2 to 3.8. That took into account and
19 allowed outage time considerations.

20 We'd also changed some of the other PIs to greater
21 than -- to being two, because of industry goals that had
22 been established by INPO and others being at that two level.
23 And the ones that we had initially proposed were tighter.

24 We ran -- we agreed to run those through the pilot
25 program and test it out. In looking at the pilot program

1 data, and looking at the January 21st historical data, we
2 find that the numbers that we had originally selected were
3 more accurate representations of what actual performance was
4 during that time period, and we have decided to go back to
5 those numbers and implement those for initial
6 implementation.

7 DR. APOSTOLAKIS: I have a question, Alan. The
8 number of scrams that you will use to enter the
9 determination process is over what period? What period of
10 time?

11 MR. MADISON: Which one, the normal scram? It's
12 for 7,000 critical hours. It's basically one year of
13 operation. This one is over a three-year period.

14 DR. APOSTOLAKIS: Over a three-year period, so are
15 you observing, say, three above the limit, the new limit?

16 MR. MADISON: Yes, greater than two scrams,
17 complicated scrams, loss of normal heat removal.

18 DR. APOSTOLAKIS: Right. Now, for the safety
19 system unavailability, how many tests am I supposed to look
20 at and calculate?

21 MR. MADISON: This is measuring the unavailability
22 of that equipment over a one-year period.

23 DR. APOSTOLAKIS: Over one year?

24 MR. MADISON: Four quarters.

25 MR. DEAN: It's a three-year rolling average.

1 MR. MADISON: But it's a three-year rolling
2 average over a four-quarter period.

3 DR. APOSTOLAKIS: What does that mean?

4 MR. COE: It's not demand failures.

5 MR. MADISON: Yes. It's not demand failures.
6 It's not a reliability indicator.

7 DR. APOSTOLAKIS: What is it?

8 MR. MADISON: It's an unavailability indicator.
9 It measures the time the piece of equipment was out of
10 service for maintenance, or because it was broken or was
11 intentionally taken out of service for other reasons.

12 DR. WALLIS: A three-year rolling average takes a
13 long time to change if it's been very good and then begins
14 to go down.

15 MR. MADISON: I don't think that's a three-year
16 rolling average.

17 MR. COE: That's a one-year number.

18 DR. APOSTOLAKIS: It is a three-year rolling
19 average. Why don't you say it isn't in unavailability?

20 MR. MADISON: It's not a reliability number.

21 DR. APOSTOLAKIS: It's not available.

22 MR. COE: It's a one-year number. It's a
23 four-quarter rolling average, but you can get, if you have
24 old information -- one of the things that we found -- it's a
25 one-year rolling average.

1 MR. MADISON: One of the things we found was that
2 you had with design issues, though, you can really flavor
3 that PI and stay with it for a long time. And we've tried
4 to make some accommodation for that in the guidance, that if
5 a design issue, as far as measuring the unavailability time,
6 to make sure that that doesn't happen, and if it does
7 happen, to be able to remove that biasing if the event has
8 been on for at least four quarters and if the event -- or if
9 the number has been in there for at least four quarters and
10 has been corrected by the licensee, we've reviewed it and
11 agreed to the correction is adequate, and we'll allow them
12 to pull that number out of the calculation.

13 MR. DEAN: Don, Don Hickman, is there any
14 clarification on the SSU?

15 MR. HICKMAN: The safety system unavailability
16 indicator is the ratio of the total hours the system was
17 unavailable during the past 12 quarters.

18 MR. MADISON: Twelve quarters, yes.

19 MR. HICKMAN: Divided by the total hours it was
20 required during the past 12 quarters.

21 MR. MADISON: So it is three years.

22 MR. HICKMAN: It is a three-year average.

23 MR. MADISON: I'm mistaken then. But the
24 reliability number that you were talking about, the measure
25 of when it fails, that's something we are working on with

1 research to try to develop that.

2 DR. APOSTOLAKIS: But it's not included here.

3 MR. MADISON: It's not included. That's why we
4 include fault exposure time in this performance indicator,
5 so if -- and that's why, again, a design issue would have a
6 large impact on this performance indicator, because we would
7 count the fault exposure time all the way back to the day
8 one.

9 And also if you have an error that you have
10 discovered in between surveillance, you would count half the
11 time back to the last time it was known to have worked. If
12 we had a reliability number, we'd have an indicator that --
13 an unavailability number, we wouldn't have to worry about
14 fault exposure numbers.

15 DR. APOSTOLAKIS: I remember, again, the former
16 AEOD. I don't know their new title. They presented a nice
17 table where they had the unavailabilities of all sorts of
18 safety systems across the 103 units.

19 How do these numbers compare to those
20 unavailabilities?

21 MR. MADISON: I don't know. Don?

22 MR. HICKMAN: You are referring, I guess, to the
23 system performance studies that AEOD did? That's a good
24 point.

25 We've not really checked these against that. And

1 we should do that. I guess by way of sort of validating
2 their results, they made a lot of assumptions when they did
3 those studies, obviously.

4 DR. APOSTOLAKIS: They tell us that this is the
5 real world. I mean, they are based on data.

6 MR. HICKMAN: That's right.

7 DR. APOSTOLAKIS: And that's why you have been
8 perplexed all this time, Garrett. Why don't you use the
9 plant-specific numbers. There is a table that has all that
10 stuff.

11 MR. MADISON: Don actually worked with some of
12 those issues.

13 MR. PARRY: If you've looked at those numbers,
14 actually we've done some checking, okay? The HIPSI results
15 and the RIPSI results are pretty much consistent with these
16 thresholds; they don't vary that much.

17 DR. APOSTOLAKIS: If you come here with one
18 viewgraph that will have these distributions, and you will
19 support the argument that you have, I will have no problem.
20 I will buy you a beer, a coffee, whatever.

21 But you're always giving me this argument as an
22 afterthought.

23 MR. PARRY: No, no.

24 DR. APOSTOLAKIS: Yes.

25 MR. PARRY: No, we're not. You have to be a

1 little -- you have to think back a little bit, too, of we're
2 getting the data from the industry. The industry has
3 presented us the data that went into the determination of
4 the thresholds.

5 That's what we start with. That's how the program
6 is going. The AEOD results were a look over an extended
7 period. But that's not going to be updated all the time,
8 and the numbers are, as Don said, calculated in a slightly
9 different way.

10 They're more focused on PRA-type information than
11 the data that we get from the licensees.

12 DR. APOSTOLAKIS: What counts eventually is the
13 PRA documentation.

14 MR. PARRY: I agree.

15 DR. APOSTOLAKIS: You want to know what -- you
16 don't care whether it was a rolling average or if it was --
17 is it going to start or not? And these data that those guys
18 showed us, address that issue. They actually go one step
19 beyond.

20 I think they tend to support your argument that
21 you don't need an individual number for each plant.

22 MR. PARRY: I think they do.

23 DR. APOSTOLAKIS: But you have to do it right.

24 MR. HICKMAN: One thing to keep in mind is the
25 AEOD studies were done primarily with data from 1987 to

1 1993. A few went to '95, but most of them were to '93, and
2 we're looking at more recent data.

3 We should see some consistency, though, I guess,
4 some sort of relationship.

5 MR. MADISON: We'll take the criticism and we will
6 document the look in our rewrite of this.

7 DR. APOSTOLAKIS: Good. I will really appreciate
8 that. If you have picked up those reports, and you will see
9 that you will get a lot of support for what you are doing,
10 plus one member here will tend to be more quiet.

11 [Discussion off the record.]

12 MR. PARRY: Can I just add a comment here? I
13 think we'd also get support for these thresholds by looking
14 at the typical numbers that you find quoted in IPES for
15 unavailabilities. They are not very far off these
16 unavailabilities.

17 DR. APOSTOLAKIS: The argument you're giving me
18 makes perfect sense to me.

19 MR. PARRY: Good.

20 DR. APOSTOLAKIS: It's just that I have to ask you
21 to get them. I don't understand that.

22 MR. MADISON: I want to also note the occupational
23 exposure control threshold. It's actually the measure also
24 changed. We had originally proposed a two-tiered type of PI
25 that would measure a three-year number and a one-year

1 number.

2 During the initial discussion with industry and
3 our folks, the feeling was that it was too complicated to do
4 it that way, and let's choose one. They chose the
5 three-year to test during the pilot. It wasn't very
6 satisfactory during the pilot, so we're using the one-year
7 going forward.

8 And that changes the threshold then from five and
9 three to two and one.

10 DR. APOSTOLAKIS: Right.

11 MR. MADISON: We have increased a couple of the
12 thresholds, relaxed a couple of thresholds.

13 If you look at unplanned power changes, safety
14 system functional failures for BWRs -- pardon me; I'm sorry
15 -- safety system functional failures and security equipment
16 performance index, we have actually loosened those.

17 That is, again, based upon going back and looking
18 at the actual data that we got in. We realized, for
19 example, in security equipment performance index, we did
20 capture a few more than we had intended.

21 The safety system functional failures captured
22 significantly more plants that we had intended to capture
23 with that threshold, so we have loosened those thresholds up
24 to, again, identify the real outliers, the folks that are
25 really deviating from nominal performance.

1 MR. DEAN: Okay, good. The last topic we wanted
2 to talk about is some of the things that we see. We talked
3 about the need for further refinements and improvements, and
4 this page here, this slide here talks about some of the
5 major things that we're going to be working on over the
6 course of the next year or so.

7 The first item there is develop additional
8 performance indicators, and this last discussion we had on
9 safety system unavailability, and the fact that we don't
10 have a reliability indicator, we feel that it would enhance
11 the program to have a reliability indicator.

12 It's one area that we identified quite some time
13 ago. We have engaged with the Office of Research to look at
14 developing a reliability indicator.

15 Another area here, the example I have here is
16 containment performance. We really don't have --

17 MR. BARTON: You eliminated that one, didn't you?

18 MR. MADISON: We eliminated the one that was
19 proposed.

20 MR. DEAN: Containment leakage.

21 MR. MADISON: It looked a --

22 MR. DEAN: Well, I'm sorry, that's true. The
23 containment leakage we have. The containment leakage
24 performance indicator was one that we deleted because it was
25 just fraught with issues that just made it very difficult to

1 get at consistent figure across the board.

2 CHAIRMAN POWERS: One of the people that I have to
3 report to reminded me that there is a third component to all
4 of this process, and he drew my attention to the corrective
5 action program.

6 Are you going to have performance indicators on
7 the corrective action program?

8 MR. MADISON: That's a good question. We do have
9 a working group looking at what we can do better in the
10 corrective action program, or if there is necessary
11 improvements we can make to the process based upon that.

12 We have advertised all along from the beginning
13 that that was an important component of this program. We
14 said that was a major portion of the baseline inspection.

15 Ten to 15 percent of all inspection activity out
16 at the site is done in the corrective action program. There
17 is a major inspection done on an annual basis at each site
18 that looks at the corrective action program on a rollup type
19 basis.

20 So we've always advertised that as a major
21 portion, a major component. We have relaxed our
22 documentation requirements to allow inspectors to make
23 qualitative judgments about the effectiveness of a
24 corrective action program, barring significant findings.

25 Even if they don't have significant findings, they

1 can make a qualitative judgment of the effectiveness of
2 corrective action programs during that annual review in the
3 report.

4 And we've also included consideration of that and
5 other cross-cutting issues in the assessment part of the
6 program where the assessment report on an annual basis, as
7 well, as the mid-cycle report, semiannually can look at
8 these issues and make qualitative judgments about the
9 effectiveness of the program in those areas.

10 CHAIRMAN POWERS: I'm surprised at your emphasis
11 on the qualitative nature. It seems to me, since I was in
12 the business of looking at DOE facilities, that one of the
13 first things we asked them was, you know, what was the
14 backlog in their equivalent of a corrective action program,
15 and how long was the average lifetime of an item in their
16 equivalent of a corrective action program?

17 It seems to me we have an intuitive feel for some
18 quantitative numbers here.

19 MR. DEAN: Yes, to build on where you're coming
20 from, Dr. Powers, is that one of the things that we
21 attempted to do early in this process was engage industry in
22 some discussion over what would be the criteria that we
23 would use to judge the effectiveness of a corrective action
24 program? And it dealt with things exactly like what you're
25 talking about: Size of backlog, timeliness of correcting

1 issues.

2 And so industry took that onboard, and actually
3 INPO volunteered to look at developing some criteria.

4 MR. BARTON: In fact, INPO has a standard out now
5 or a guide for self-assessment in corrective action
6 programs.

7 MR. DEAN: Right. That's a fairly high level
8 principle document.

9 MR. BARTON: It just came out.

10 MR. DEAN: Right. And that resulted, I think, a
11 lot from our discussions early on about what can we do to
12 establish criteria? As Alan mentions, that looks at
13 self-assessment/corrective action, but probably at a higher
14 threshold than to get after, perhaps, what an inspector
15 would be more interested in, in looking at the actual
16 effectiveness in dealing with some of those quantitative
17 type issues.

18 So, what we plan on doing is looking at taking on
19 this issue ourselves, and trying to establish some more
20 standardized criteria by which we can judge the
21 effectiveness of a corrective action program, and being able
22 to look at things like that.

23 As you mentioned, a number of licensees trend that
24 type of stuff already as a measure of their effectiveness.

25 So what we'll do is look at that and then work

1 with industry to try to come to some consensus as to what we
2 all agree are good criteria. Hopefully we can use that on a
3 going-forward basis, but that will take us some time, I
4 think, to develop that, but we do have a group in place
5 that's starting to look at that issue.

6 MR. MADISON: And if you want to talk about some
7 of those individual PIs with me, I used some of the same
8 type of indicators doing diagnostic evaluations as well.
9 But that's more down at a lower level in some cases than we
10 want inspectors to look at.

11 CHAIRMAN POWERS: You could guys could get on my
12 good side today because you would have saved me from getting
13 a lecture from my boss for performance indicators on this
14 corrective action thing. Then I would have remembered that
15 it's a key -- I wouldn't have been chastised and been in a
16 much better mood.

17 MR. MADISON: I'm sorry. It's been in the written
18 material from the beginning.

19 [Laughter.]

20 MR. GILLESPIE: Let me emphasize that we had a
21 meeting actually with INPO and NEI, Ralph Beedle and Mark
22 Pfeiffer from INPO who came up, who has now moved up the
23 chain at INPO a little bit.

24 Besides that document, that higher level document,
25 they actually have the next tier down. They call them

1 how-to's, where they're looking at a whole process where
2 they would go out and do periodic evaluations.

3 The licensee would do annual evaluations that
4 they's share with us. In fact, at the meeting we had, we
5 shared the thought about is there something to be learned
6 from how we deal with the training program that we might
7 learn from this?

8 If they're going to do periodic evaluations, could
9 we go and observe four or five or six of them a year? Plus,
10 have the inspectors then getting an annual report which is a
11 self-assessment.

12 And the industry has taken this seriously enough
13 that what Mark said was, for only the third time in history,
14 they have asked every utility in the country to report back
15 to them on how their programs match up against that
16 higher-level program as a starting point.

17 So, the idea that the cross-cutting issue is
18 corrective -- problem identification, corrective action
19 programs, has really taken hold.

20 I'll say we're tiptoeing a little bit because
21 we're on that threshold of regulation versus excellence.
22 Their focus is to try to make sure that their facilities
23 have the wherewithal, procedures, and the ability to
24 identify problems to keep us out, quite honestly, to keep
25 their performance in that band.

1 I think that's going to be a big plus for safety,
2 if we can be a catalyst to see that happen. So that process
3 has started.

4 The working group that Bill mentioned will be
5 interfacing with them, and INPO said that probably their
6 process will gel enough that they can really talk to us
7 about something, probably towards the end of April or so.

8 So, there are a lot of people working it, and a
9 lot of high level attention is now getting paid to it,
10 problem identification and corrective action. So, it's not
11 just that one document. There is a whole bunch of stuff
12 that's going on underneath it.

13 DR. SEALE: Mr. Chairman, do you think there would
14 be something of interest in that product of around the end
15 of April that the Committee might be interested in?

16 CHAIRMAN POWERS: I am willing to bet money that
17 there is, but I'm also willing to bet money that they're not
18 ready to come talk to us about it.

19 DR. SEALE: Well, whenever.

20 CHAIRMAN POWERS: But in May.

21 MR. GILLESPIE: Yes, they were kind of viewing it
22 as that kind of timeframe, because they're trying to get
23 this report in from everybody, and then get their thoughts
24 together. For instance, how often would INPO go out, like
25 parallel to the training accreditation visits. And then

1 licensees would do something annually, so they have actually
2 put some real thought into how this whole thing links
3 together.

4 And we would then observe this whole process kind
5 of as an integral. We just have to see how that comes off
6 in the next year.

7 MR. COE: I'm not sure a working group would be
8 prepared to come to you at that point.

9 CHAIRMAN POWERS: Okay.

10 DR. UHRIG: There was a recent report I saw where
11 Dr. Vesely of the Fussel Vesely fame, commented that only
12 about ten out of the 2,000 or 3,000 items in the backlog
13 corrective action list were really important to safety, and
14 that these should be addressed first.

15 Would that, if implemented by the utilities, have
16 an impact upon the kind of evaluation of that program that
17 you're considering?

18 MR. GILLESPIE: Absolutely. Bill was working for
19 a couple of utilities, but we also put some seed money into
20 that same project. And it was a kind of neat frequency
21 distribution, sorted by important sequence with systems
22 versus flaw, which allowed you to get that kind of focus.

23 We would expect that anything that comes out of
24 this would have to take consideration of exactly that point,
25 because we really want to focus on that top two or three

1 percent being worked.

2 So that would be kind of a performance
3 characteristic we'd see being factored into a good
4 corrective action program.

5 MR. COE: We have actually done a couple of
6 exploratory types of inspections along those lines to see if
7 there is a way to develop a tool or whether it's worth
8 pursuing. At about the time we completed those inspections,
9 Vesely came out with his thoughts and ideas.

10 And we have had an ongoing dialogue with Research
11 as to the viability and the possibilities of such a tool.

12 MR. MADISON: We see it right now, what's been
13 developed, as very time consuming and resource-intensive.
14 And we need to develop something that is going to be much
15 more simple and much more less impact on our resources.

16 DR. UHRIG: One other thing that I ran across
17 recently was a NEI publication that characterized this
18 process as four levels of the green, white, yellow, and red
19 levels, and the green was satisfactory, the white was
20 characterized as being deserving of a utility attention; the
21 yellow was characterized as deserving of NRC attention, and
22 the red is unsatisfactory.

23 Is this a fair characterization?

24 MR. DEAN: No. I'm not sure -- I don't know
25 exactly what document that is that you're referring to.

1 DR. UHRIG: It was one of the NEI leaflets. I may
2 be paraphrasing this.

3 MR. DEAN: One of the issues that we're concerned
4 about a little bit is that people take -- and this may be a
5 criticism of the process that we need to look at -- is that
6 people take, you know, the green, white, yellow, and red
7 characterizations of performance indicator results or
8 inspection findings, and then try and translate that to an
9 assessment of the licensee performance.

10 And really what you to go to is, you have to go to
11 our action matrix. The PIs and the inspection findings
12 serve as an input to that. And then there are various
13 categories in there, depending on the impact on various
14 cornerstones and how many cornerstones are affected and to
15 what level.

16 And that defines what action we take. So that's
17 something where people fall into that trap a little bit, of,
18 you know, they're a white-performer or a yellow-performer,
19 and we have to be careful that we don't make that
20 connotation.

21 So you might be referring to something that might
22 have been sent out early, because our own document, 1649,
23 NUREG 1649, kind of mischaracterized that approach early on
24 when we were first developing the pilot program.

25 DR. UHRIG: This was headlined something like

1 proven evaluation process being implemented, as I recall the
2 headline.

3 MR. DEAN: We'll have to ask NEI to see if we can
4 get a copy of that.

5 MR. BARTON: Are you through with this slide?

6 MR. DEAN: Yes. Well, we're about 2:30.

7 MR. BARTON: I was just wondering if you had any
8 more and if there were any questions. NEI was going to make
9 a presentation, but I don't think NEI is with us this
10 afternoon. That's why I allowed the staff to go another 15
11 minutes.

12 If the staff is finished with their presentation,
13 are there any other questions of the staff? I think this
14 was an enlightening further discussion on where you're
15 going.

16 I think it will make a lot of good improvements in
17 the program in getting it ready to roll out.

18 Any other questions?

19 [No response.]

20 MR. BARTON: Thank you very much.

21 MR. DEAN: You're quite welcome.

22 MR. MADISON: Thank you.

23 MR. BARTON: Mr. Chairman, I send it back to you.

24 CHAIRMAN POWERS: I thank the staff also for this
25 presentation. I hold you in great admiration. It's

1 unbelievable, all you've been able to do.

2 MR. DEAN: Thank you.

3 CHAIRMAN POWERS: I think we're excited about it,
4 and it's very evident to us that the Commission is very
5 excited about this program. So while we interrogate you
6 closely, it's just because we want to learn all we can about
7 it.

8 MR. DEAN: We appreciate that. Like I said, you
9 know, the offer, if any individual members feel like they'd
10 like to have some discussions with us, certainly any time
11 you want us to come back and talk to you, certainly as we go
12 through the pilot process, you're going to want updates.

13 CHAIRMAN POWERS: I think we'll need fairly
14 frequent updates, but we don't want to do it till you're
15 ready to come update us. Thank you very much.

16 DR. SHACK: If you can quiet George, I'll buy you
17 a beer.

18 [Laughter.]

19 CHAIRMAN POWERS: I'll recess us for 15 minutes
20 till quarter of.

21 [Recess.]

22 CHAIRMAN POWERS: We'll come back into session.
23 The next item on our agenda is to discuss license renewal at
24 Oconee, but before we get started, I'll recognize Jack
25 Sieber.

1 MR. SIEBER: Thank you, Mr. Chairman. I need to
2 put on the record that I will recuse myself from voting on
3 the Oconee matter, due to a conflict of interest in owning
4 Duke Capital stock.

5 CHAIRMAN POWERS: Okay, we'll pay no attention to
6 you whatsoever then.

7 [Laughter.]

8 CHAIRMAN POWERS: Oh, you mean just for this item.
9 I'm sorry.

10 Dr. Bonaca, do you want to lead us through this
11 set of presentations?

12 DR. BONACA: Yes, Mr. Chairman. As you know, last
13 week we met at the Oconee facility. We had an open
14 Subcommittee meeting that most of the Committee members
15 attended.

16 We reviewed the closure of open items in the SER
17 and the final SER provided for Oconee. We had
18 representation on the part of the licensee, and also on the
19 part of the NRC staff.

20 We had a number of issues. We asked both of them
21 to come and to present to the Committee. Specifically for
22 Duke Power, we asked to talk about the scoping methodology,
23 cables and connections, reactor vessel internals, and also
24 one-time inspection, their philosophy of application, as
25 well as buried piping, and how inspections from Oconee apply

1 to the Keowee facility.

2 We also asked the staff to address the same issues
3 in their presentation to us for the SER.

4 I would like to remind both presenters that we
5 have only one hour and 15 minutes scheduled for our agenda,
6 so we will try to be pretty quick through those
7 presentations and to leave a few minutes for us for
8 discussions.

9 With that, I'll introduce the Duke personnel.

10 MR. ROBINSON: Thank you, Dr. Bonaca. My name is
11 Greg Robinson, and it's nice to be with so many of you who
12 were with us at Oconee last week.

13 I'd like to introduce with me today, Jim Fisicaro
14 from Duke Energy, and also Jeff Gilbreath who will be
15 presenting our reactor internals information. Jim?

16 MR. GILBREATH: I just wanted to say a few words
17 of thanks. Mike Tuckman wasn't able to be here today. He
18 had a death in his family earlier this week, so actually the
19 license renewal folks actually work for me, and on behalf of
20 Duke Energy, I just want to thank Dr. Bonaca and his team
21 for last week's effort.

22 I think that was a very good interchange amongst
23 both sides. I think we both learned some things, and do
24 appreciate the support that the ACRS has given this. We
25 appreciate the NRC staff for their review.

1 We are meeting schedules, and I think everybody
2 knows that this is a very important piece to Duke Power
3 Company, so we appreciate your efforts. So thank you very
4 much.

5 MR. ROBINSON: And with that, thank you, Jeff.
6 These are the five issues that you just laid out, and I'll
7 move quickly into the first one:

8 We have spoken briefly about the scoping
9 methodology last year when we had a chance to meet, and we
10 did spend a good bit of time at Oconee going through the
11 details of the scoping process, including the engineering
12 records that captured the scoping results.

13 The SER open item was associated with a definition
14 or struggling with the definition of design basis events and
15 the timeframe that that definition was used at Oconee.

16 There was a concern or the issue was whether the
17 set of events that we did identify associated with the
18 scoping of the plant, was sufficient for scoping for license
19 renewal.

20 We went through a number of meetings and a number
21 of discussions with the staff on this issue, and in order to
22 resolve it, we conducted a case study and looked at ten
23 additional events, and the licensing basis aspects at Oconee
24 for those ten addition events.

25 And we were able to conclude from that study that

1 there were no additional systems, structures, and components
2 identified by those ten events that were not already within
3 the scope of license renewal.

4 And we felt very good about the validation efforts
5 of that study.

6 DR. BONACA: Just a question: Seven of those
7 events, you conceded; the other three you did not find them
8 in your design basis. The question I have is, do you
9 consider those seven additional events part of your current
10 licensing basis?

11 MR. ROBINSON: The seven additional events, in
12 some aspects, part of our current licensing basis at Oconee.
13 They are not, however, part of our design basis events set
14 of materials.

15 Again, to change that definition would require
16 significant changes to other aspects of the plant. But as
17 far as finding them, we did find aspects of those seven
18 events that you've spoken of in the current licensing basis
19 of Oconee.

20 DR. BONACA: Okay. I appreciate the fact that you
21 covered them and addressed them. I just was left with that
22 question in my mind as to whether or not you would consider
23 that part of your current licensing basis.

24 CHAIRMAN POWERS: I wonder if the process of
25 identifying these ten additional events has any translation

1 to whether -- this particular -- restricted to Ocone.

2 MR. ROBINSON: I don't know that I'm qualified to
3 speak about others' designs, but I imagine that things that
4 were designed in the time period when the definitions of
5 terms such as design basis events were being put forth,
6 you're going to find uniqueness in the late 60s designs in
7 the United States.

8 CHAIRMAN POWERS: That's why I'm interested in the
9 process and not necessarily the details.

10 DR. BONACA: I would expect that when we come to
11 the staff we'll ask that question, and we'll hear that it
12 would be, in my judgment -- that's why I asked the question
13 about current licensing basis, because that's what I
14 believed happened there, although I recognize that it wasn't
15 part of your original design. But you were asked by the
16 staff for a number of issues that came like TMI action items
17 and so on, to address additional issues. Although they were
18 not part of the original design basis, they are part of your
19 current licensing basis.

20 MR. ROBINSON: Yes.

21 DR. BONACA: Okay, thank you.

22 MR. ROBINSON: I will move on and summarize the
23 second issue on our list now, which was the insulated cables
24 and connectors issue.

25 A little background on this issue: When we

1 originally did the reviews, aging management reviews for
2 license renewal at Oconee, we found several instances from
3 field walkdwn work where we had cables and connectors that
4 were in locations that were in high temperature areas or
5 high radiation areas.

6 And in a number of instances, we were able to
7 relocate those cables, to move them out of those areas.
8 Using that thought that we perhaps could make modifications
9 to the plant and not end up with any cabling in a very, very
10 aggressive environment, we went with the idea that we would
11 really not need an aging management program if we modified
12 the plant to the extent where the hardware was not being
13 exposed to these environments.

14 However, because a number of the cables had not
15 been moved out of their aggressive environments, and may not
16 be moved due to budget restrictions or other things, there
17 was a feeling during the inspections that it may be better
18 to go ahead and plan for an aging management program for
19 those cables.

20 We can still relocate them, still modify the
21 plant, which would eliminate the problem. But for those
22 areas that we did not eliminate the exposure to the
23 aggressive environment, we wanted to go ahead and put a
24 programmatic action in place. We called that the insulated
25 cable aging management program.

1 We did work with the staff to develop the aspects
2 of that, so there was a good understanding. In particular,
3 a number of members of the staff and Duke were involved in
4 IEEE efforts on aging effects, and they applied their
5 knowledge to this program.

6 The focus of the program is on the cables and
7 connectors, and the adverse localized environments,
8 including radiation, temperature and moisture environments,
9 in particular, conduits.

10 And we did have an opportunity when we were at
11 Oconee to see some of the areas that we had gathered
12 information from, a number of the cable banks that were
13 there in the buildings, and they will be the types of areas
14 that this program will be focused on.

15 DR. BONACA: In containment, you had also some
16 areas where you had synergistic thermal/radiation effects.

17 MR. ROBINSON: Yes, we did, in containment. One
18 of the things we did do as a part of license renewal efforts
19 to gather information in containment is, we instrumented the
20 inside of several of our containments to gather thermal
21 data, so we could do thermal mapping and profiling to begin
22 to understand what kind of thresholds we were actually
23 exposing the hardware to.

24 We used that as insights to us in noticing the
25 aggressiveness of the environment. Along with the thermal

1 monitoring, we did some radiation monitoring, and that's
2 where the idea of the synergistic effect did come in.

3 DR. BONACA: Thank you.

4 MR. ROBINSON: So that is a summary of the
5 insulated cables item that we dealt with.

6 DR. BONACA: The program, however, that you
7 presented, is broader than just thermal/radiation. You have
8 the moisture concern, and issues being addressed also for
9 buried cables and in-tray cables, right?

10 MR. ROBINSON: Yes, they are, especially the
11 cables in the conduits. I'll make note that we've spent
12 some time -- we are in our third inspection at Oconee, our
13 Regional inspection this week, and one of the items in the
14 electrical area was to go back in the plant and reinforce
15 the aspects of this program versus the physical layout of
16 the plant, in particular, conduits in areas that may be
17 exposed to moisture or maybe could collect moisture, which
18 would also be a part of this program.

19 CHAIRMAN POWERS: Do you have an idea of what the
20 chemistry is that causes a coupling between the moisture and
21 the thermal processes?

22 MR. ROBINSON: No, sir, I don't.

23 CHAIRMAN POWERS: I could imagine why the
24 radiation would couple with the moisture, just because you
25 build up a little peroxide and some free radicals in there.

1 MR. ROBINSON: To my knowledge, the areas that
2 could be exposed to moisture are typically in the lower
3 parts of the building and away from bigger, hotter,
4 equipment, so there is probably less of the synergistic
5 effect there, if there is any.

6 CHAIRMAN POWERS: What you say is there is this
7 coupling of thermal and moisture, not radiation and
8 moisture, as far as I can remember in your documentation.

9 MR. ROBINSON: Okay. The next area is the one
10 that Jeff Gilbreath will cover, and this is where we're
11 moving into our reactor vessel internals area.

12 MR. GILBREATH: The reactor vessel internals had
13 six open items that we had to address. Those six open items
14 basically captured all of the aging mechanisms that we
15 identified in our topical report, and also how those aging
16 mechanisms may affect or potentially affect the reactor
17 vessel internals.

18 Specifically, those were -- they are listed:
19 dimensional changes due to void swelling; cracking of
20 internals -- this was primarily looking at radiation stress
21 cracking; thermal embrittlement of the plates and formers,
22 non-cast items.

23 Then we evaluated the cracking of baffle bolts due
24 to ISCC. Also we were to evaluate embrittlement of cast
25 components and reactor vessel internals; thermal

1 embrittlement of the vent valve, and reduction of fracture
2 toughness.

3 Just to point out some of the components that
4 we're addressing, our internals basically are two
5 components: the plenum, which is upper internals area,
6 which houses your control rod drive mechanism. In that
7 mechanism, there is actually ten spacers or guide cards, and
8 those ten spacers are made of cast and also made of CASS
9 austenated stainless steel.

10 Then there is your core support area, which is
11 actually three components bolted together. Your core
12 support shield on the very top actually has the vent valves,
13 eight vent valves in it, and also on Oconee Unit III, you
14 have a CASS austenated stainless outlet nozzle.

15 Then our primary focus is actually in the core
16 barrel region where the radiation is the highest. You have
17 your baffle bolts, your plates, your former and baffle
18 plates, and also your core barrel region.

19 And then your lower internals have an in-core
20 guide tube which has a spotter assembly made of CASS
21 austenated stainless. So those were the components that
22 have been identified as needing further studies.

23 DR. SHACK: Just out of curiosity, why are the
24 baffling plates perforated?

25 MR. GILBREATH: I have a better drawing of those.

1 [Pause.]

2 The baffle plates actually form the geometry of
3 the core, support your assemblies but at the same time these
4 particular plates have a pressure relief holes in those for
5 interaction of water from the bypass region and also the
6 normal core region. There are some slots in the plates,
7 actually in the center of the plates in this area that also
8 allow some cooling interchange.

9 With this particular design, the Ocone, it's an
10 upflow design, bypass flow design, and they have tried to
11 maintain pretty much a zero differential pressure on one
12 side of the plates versus the other. Some designs are
13 different.

14 DR. SHACK: Have you estimated your gamma heating
15 then in there?

16 MR. GILBREATH: We have a program to actually do
17 that. Some utilities have -- EDF has done some studies in
18 that area like the gamma heating effect there could go as
19 far as an additional 50 degrees but that is something that
20 as part of our program we will be doing over the next three,
21 four years.

22 Initially our approach that we took to reactor
23 vessel internals, we have developed an aging management
24 program. That program really was a focus on the process --
25 what we need to do, what we need to learn to manage the

1 potential effects of all these different aging mechanisms,
2 since most of these particular effects may have never been
3 seen before in the industry.

4 In doing that, once we have completed our
5 analysis, our studies in the industry as far as testing
6 certain surveillance materials, we would put together
7 whatever inspection programs would be needed to manage the
8 effects to the internals.

9 The NRC in reviewing our proposal, I think their
10 concern was that a lot of these aging mechanisms may not
11 show up until late in life and if you are developing your
12 program now, they weren't sure that there was a real
13 commitment I guess to doing inspection in that period that
14 the aging mechanism may show up, so they suggested that we
15 assume that these effects do exist and commit to an
16 inspection program and in doing that, if, for instance, once
17 we do our analysis and our evaluations we can prove that
18 that will not affect the function of the internals at that
19 time we can make that submittal.

20 They will evaluate it and we can maybe change the
21 elements of the inspection program. That was acceptable to
22 us, so basically what we did, we submitted an inspection
23 program. We rolled in all the different process that we're
24 already working on in the inspection program to help develop
25 the different elements.

1 Basically there we have 12 elements in the
2 inspection program and things such as acceptance criteria,
3 the inspection method, corrective actions, different things,
4 we still have to develop, and so the commitments we made
5 with the inspection program -- one, we would inspect all
6 three internals and we would do this in a time when we
7 wouldn't just do it all in the early part of the license
8 renewal period but we would do one in the early part, one in
9 the middle and one in the latter, not being the last year of
10 the renewed term.

11 We also committed to work with the industry,
12 particular the B&W Owners Group, Reactor Vessel Internal
13 Aging Management Program. They have quite a number of tasks
14 that are really supporting us in doing the evaluation and
15 performing the analysis we need, not only the BWOG but also
16 EPRI has a program called Materials Reliability Program,
17 which they have an issues task group on reactor vessel
18 internals and that task group is managing or trying to
19 coordinate all the different activities in the U.S. on
20 reactor vessel internals aging effects.

21 Also, they have another group called the Joint
22 Baffle Bolts Task Team or the JOBB you may have heard, and
23 that particular group said look, who's the leaders
24 internationally? Who is actually doing the work out there
25 in the world on reactor vessel internals that we might could

1 participate with, learn from what they have done and also
2 incorporate some of our materials? We formed the JOBB and
3 actually found that EDF has done quite a bit of work in this
4 area.

5 So we have taken materials from both the Oconee
6 internals and also materials -- well, the Westinghouse
7 groups have done the same -- and we have sent those to EDF
8 and asked -- they have already set up contracts and all to
9 irradiate their materials at different places -- and we have
10 asked if we could irradiate ours and do some studies in that
11 way. We are working with them -- as a matter of fact, we
12 have a meeting with them in April to go over some of the
13 findings in the initial irradiations.

14 There's a lot of industry participation going on
15 that we have committed to. Lastly, we have committed to
16 give reports to the NRC on a routine basis, the first report
17 being within one year of receiving a renewed license and
18 then later reports over the next 10 years, and the final
19 report being about at the end of the present license but
20 within two years prior to our first inspection, laying out
21 the basis for our inspection program and developing our
22 aging management program at that point.

23 I guess the last bullet we have already covered.
24 Obviously modifications of this program are going to exist
25 as we learn more.

1 The inspection as it exists today, our inspection
2 program, really consists of three items. One is the baffle
3 bolt inspection which we plan to do some type of volumetric
4 inspection on the baffle bolts. That is one area that we
5 have actually seen some cracking in the industry. I know
6 the EDF has had cracking and there's been a few baffle bolts
7 found cracked in the U.S.

8 In that program there's been quite a bit of work
9 in the industry already, developing inspection methods for
10 that, so there is not a lot of work to do in that area
11 except to say that we are doing analysis to see how many --
12 there's different internals for different designs but like
13 the Oconee design there's approximately 1400 baffle bolts or
14 baffle former bolts. What we want to know is how many of
15 those baffle bolts we need to maintain the function of the
16 internals and we are doing analysis to determine that today.

17 Also, the CASS austenated stainless steel, you
18 know, the real concern there, we knew that there was a
19 thermal embrittlement effect and we knew that there's an
20 irradiation effect, but never really have seen any kind of
21 synergistic effect of the two and so we are trying to
22 develop now or we are developing a program today not only to
23 do an inspection but to do an analysis to determine a
24 critical crack size so we can figure out what type of
25 inspection we will have to do to detect a crack in that

1 particular component. Most of our CASS austinated
2 components are in a compressive state.

3 Also we have pretty much the other components that
4 capture the rest of the internals, concerns with our core
5 barrel and shield bolting is X750 material. You could have
6 a stress corrosion cracking issue there that we need to
7 monitor, and we have a program today that we do an
8 inspection of those bolts.

9 Also on the plates, former plates and baffle
10 plates, I guess a concern has come up through this
11 evaluation -- what is swelling, is there a potential for
12 swelling, and how might it affect the reactor vessel
13 internals, and so we really try to focus in on where the
14 gamma heating effect may be the highest, because where your
15 highest temperatures are and your highest irradiation, that
16 is probably going to be your limiting area as far as
17 swelling or the first place you would see swelling and so we
18 are developing a program to perform an inspection for
19 swelling also.

20 That's kind of where our focuses are today. As we
21 said, this program may evolve. You may see that group that
22 says "other components" become two or three bullets, two or
23 three different types of inspections, depending on what
24 mechanism or what effect we are looking for.

25 It could be volumetric if we are looking for

1 cracking, if we are looking for dimensional changes -- it
2 could be quite a few things and those we are going to still
3 have to work out.

4 CHAIRMAN POWERS: It isn't obvious to me that the
5 plant's temperature region would be the region of maximum
6 swelling.

7 MR. GILBREATH: The direction we have been given
8 in studies that we have looked at, I guess we have utilized
9 some of Frank Gardner's studies and contracted him to help
10 us -- he seems to believe and has shown with the results he
11 has had I guess in the vessels he has looked at where the
12 maximum temperature is and fluence, a combination of the
13 two, are really your two drivers for swelling.

14 If the temperature drops a little, you may not
15 have any effects, so where that threshold is, it's still
16 really unknown with PWRs.

17 CHAIRMAN POWERS: I would assume that the
18 temperature effect can't be linear. It has got to go
19 through some maximum glib to get it high enough. I will
20 anneal out -- if I get it hot enough. I don't know what hot
21 enough is though.

22 DR. SHACK: Yes, but he is on the other end of the
23 curve.

24 CHAIRMAN POWERS: Okay.

25 MR. GILBREATH: Yes, it seems that higher

1 temperatures in this case are not good.

2 CHAIRMAN POWERS: Yes, you are going upslope.

3 MR. GILBREATH: Yes -- which is actually good for
4 PWRs since we do not operate at the temperatures that the
5 swelling has been seen in the past.

6 MR. ROBISON: Thank you. I appreciate Jeff going
7 through that. We had quite a lengthy discussion at Ocone
8 last week on the very same subject.

9 It is a very broad subject, and in fact that is
10 the area, as several of us have discussed, that we believe
11 is sort of the new area that license renewal has moved into,
12 is reactor internals and the maturation of this program from
13 when we started in 1996 until today is pretty amazing. You
14 see how far we have come and then the timelines and plans
15 that have been laid out. It speaks well for the hard work
16 Jeff and others have done.

17 The last two items on our agenda today would be
18 the one-time inspections and then the buried piping
19 overviews.

20 I just have one slide on the one-time inspections,
21 calling out that we make sure we know what we are talking
22 about when we are talking about one-time inspections. They
23 are aimed at verifying the aging effects are not occurring.
24 This is the check to make sure that things are not
25 happening. We could not absolutely say something was not

1 going to be an effect that would cause a problem over a
2 longer period of time, so we said what we really need to do
3 is go look.

4 We have almost 30 years of operating experience
5 now. Somewhere between here and 2013 we had planned to do,
6 before the end of the initial 40-year period, we would have
7 had 30, 35 perhaps even closer to 40 years of operating
8 experience or exposure of this set of components to the
9 environment, and something that was going to reveal itself
10 should be revealing itself somewhere in that timeframe.

11 What I have listed here, and I won't read through
12 them, you can read through them, but these are the nine
13 topical areas for the one-time inspections. You can see
14 they range from carbon steel type components to stainless
15 steel type components to things that are exposed to oil and
16 air and moisture, to systems that are exposed to very clean
17 chemistry, chemically controlled items, but we just could
18 not quite make judgments that they were going to be fine so
19 we are going to go look.

20 CHAIRMAN POWERS: Your reactor coolant pump motor
21 oil collection tank inspection, that's because you are
22 afraid you may get acids in this motor oil that gets
23 collected?

24 MR. ROBISON: It's even simpler than that. When
25 we dump the oil in it, there's a chance that when we spray

1 down in the reactor building you are getting water in this
2 tank.

3 It's a carbon steel tank inside. We don't know
4 what is going on.

5 We assume there is a coating of oil inside that
6 will remain even when you drain the tank out. You will keep
7 a film in there.

8 We don't know, and what we would like to do is go
9 take the manway off and go in there and take a look just to
10 convince ourselves that that coating of oil is protecting it
11 and we are not inadvertently spraying down the building,
12 getting moisture in this tank and having the tank perhaps in
13 a degraded condition so it couldn't catch the oil in the
14 case of needing it in a fire event.

15 It just seemed like a good, common sense way
16 rather than trying to analyze our way out or guess our way
17 out we would go into the plant and take a look.

18 DR. UHRIG: Some of the inspections have to do
19 with specific pieces of equipment and others are materials.
20 Take the first couple -- cast iron selective leaching
21 inspection. Is there any particular place that you will do
22 this or is there a sampling of places?

23 MR. ROBISON: There were a number of pump bodies
24 in treated water systems and raw water systems that we felt
25 like could have a progressive leaching effect occur if it

1 were going to occur. We do disassemble those pumps for
2 maintenance periodically and what we hope to do here is plan
3 some intrusive type inspection while maintenance is in there
4 doing work on the pump for other reasons.

5 DR. UHRIG: On the galvanic susceptibility
6 inspection, does that have to do with buried pipe, or is
7 that in addition to the buried pipe?

8 MR. ROBISON: That is in addition to the buried
9 pipe. From my past experiences, we have put bronze and
10 stainless and carbon sort of intermixed as replacement
11 items. We certainly did that for corrosion or erosion
12 issues and I am not certain of the long-term effects of
13 welding all of that together.

14 I asked my metallurgist here and he gives me some
15 insights and some I understand, some I don't. I am going to
16 go look and make sure that we are not creating a situation
17 in the plant -- I don't think we are.

18 DR. UHRIG: How about the condensers? Are you
19 using different materials in the condensers or you have all
20 the same?

21 MR. ROBISON: Up to now we have had the same. I
22 don't if we have retubed any of Oconee's condensers. I
23 can't remember off the top of my head. I know we have done
24 some work at some other plants, other of the Duke plants.

25 DR. UHRIG: I remember having four sections with

1 four different materials one time at Turkey Point.

2 MR. ROBISON: Oh, boy.

3 CHAIRMAN POWERS: If your metallurgist is like my
4 metallurgist, he'd probably give you the galvanic corrosion
5 potential good up to a sign.

6 MR. ROBISON: Yes.

7 CHAIRMAN POWERS: And these complicated system --

8 MR. ROBISON: They handed me the book and said you
9 can figure it out. Find your metals on the thing and just
10 be careful with which ones you pick, so it seemed more
11 practical to go take a look, so we are going to go do that.

12 DR. BONACA: Assuming you have corrosion on the
13 oil collection tank, you have a leak from that, they'll look
14 at it from inside the containment, right?

15 MR. ROBISON: Yes.

16 DR. BONACA: And so you will have really a
17 spillover on the floor?

18 MR. ROBISON: Yes, sir. Yes, and that certainly
19 is a concern, and that is why it seemed more prudent to go
20 look than to try to make an assumption that we dump the oil
21 frequently enough to keep a sheen in the tank itself.

22 CHAIRMAN POWERS: I would think that the worry
23 about water, that's a good one. I hadn't thought about that
24 one, but I would also worry about, you know, you put those
25 hydrocarbons in there and they are nice good hydrocarbons in

1 theory but as they age and get older you can get carboxylic
2 groups in there and they become acidic and they can do some
3 corrosion, even when you don't -- it's oil and old oil is
4 not always very protective.

5 MR. SIEBER: There is boric acid there too.

6 MR. ROBISON: Right, yes. I think the Staff will
7 speak more to the one times.

8 The last subject area I will overview for us is
9 the buried piping area. We had some discussions on it. I
10 thought I would begin with a graphical illustration. I'm
11 told that I am supposed to start with graphics and then go
12 to words, but I did it opposite today. My wife is a
13 schoolteacher. She told us that.

14 The 132 inch diameter piping represents the
15 condenser circulating water system at Oconee, which is
16 actually a large cave underground. The 18 inch line is
17 meant to represent or illustrate the largest size line
18 anywhere else on site that is buried or at Keowee. One of
19 the discussions topics that came up was how do we make it an
20 equivalency between Keowee buried lines and Oconee buried
21 lines when in fact the entire site was disturbed together at
22 the same time and all the lines were installed together with
23 a similar technique, and I have illustrated that here.

24 Surface preparation of coating and wrapping the
25 lines was the same, the standard specification of how we

1 prepared the piping when we put it in the ground. The
2 interesting thing about the 132 inch line is we actually go
3 in that line and inspect from the inside, so every few years
4 we are able to dewater one of the units' lines -- there's
5 two lines coming into each unit -- and go through the lines
6 and inspect internally for areas where the coatings and
7 wrappings may have had a holiday in them, creating a
8 galvanic cell with the soil and you would end up with a hole
9 in the line.

10 We have three that we were able to find in the
11 operating literature, operating history of the plant.
12 Typically when you find it, you will UT around the area.
13 You will go in and make some type of repair on the spot.

14 Interestingly though, to lose function of that
15 line would require many, many, many holes. In our situation
16 here, finding many, many, many holes would tell us the
17 behavior of the piping material and the whole system, the
18 soil, the piping, the coatings and all had progressed to the
19 point where something needed to be done. That is the
20 indication that we are after, not the one hole or the other
21 hole but the general behavior of the setup.

22 You can see if you look at the square footage that
23 we are reviewing here, it is roughly the area of 10 football
24 fields that we are surveying, and that is quite a lot of
25 surveillance data.

1 CHAIRMAN POWERS: That's a pretty good sampling.

2 [Laughter.]

3 MR. ROBISON: That is a pretty good sample.

4 MR. BARTON: Are you surveying by internal -- UT
5 from internally?

6 MR. ROBISON: We are visually looking internal,
7 internal to the lines, for areas where the coatings may not
8 be doing their job, because typically what will happen is a
9 galvanic cell will establish itself between the soil and the
10 carbon steel piping and it will lead to a hole in the line.

11 This was meant to introduce you. I don't know if
12 you have any other particular questions here, but it was a
13 solution. I would even look closely at our other nuclear
14 units to see if this type of technique will work, but I do
15 know that we feel very good about the technique we have
16 here.

17 When we have had those several leaks and we've
18 UT'd large areas around those holes, they have been very
19 specific, location-specific, and the remainder of the piping
20 is at or above the mil spec that it was purchased at, so we
21 have good belief in the quality of what's there, the
22 behavior of what's there.

23 DR. UHRIG: Do you do any repair from the outside?

24 MR. ROBISON: If we can dig to it. The last hole
25 we had was 35 feet underground, and it would have been

1 difficult to dig down because we were out on the discharge
2 end. We would have to have gone and dug down from the upper
3 parking lot down to the line, so that is the reason we have
4 developed, tried to develop more focused internal
5 inspections, because of the locations of these lines.

6 You said the soil is pretty much identical between
7 the Keowee facility -- because one of the issues was that
8 you are inspecting the Oconee piping then inferring the
9 condition of the Keowee piping from the Oconee inspection.

10 MR. ROBISON: Yes, and I was unable to bring the
11 photograph but I did find a photograph in an old book that
12 we had onsite where the entire site had been disturbed. The
13 soil on the entire site had been disturbed literally from
14 the riverbed -- for you gentlemen who are able to go to
15 Keowee -- from the riverbed where the hydro plant is located
16 all the way over to the nuclear station in its location.
17 All of that was disturbed, so the piping at the Keowee
18 facility was put into the same moved soil and moved earth
19 that the big lines at Oconee were, so we would have a good
20 feel that all of that soil had been mixed and moved around
21 and should be similar in characteristics.

22 CHAIRMAN POWERS: There is nothing, given your
23 location, you don't have any problems where the Keowee could
24 be saltier than the Oconee soil?

25 MR. ROBISON: To our knowledge, no. When we went

1 and looked back through our records and talked to our
2 engineering folks, our civil engineering folks, they could
3 see no reason why there should be any behavior different
4 between the two. They are in the river valley.

5 CHAIRMAN POWERS: The classic one is that we've
6 got a parking lot that gets deiced with salt and that
7 affects the soil around it, and of course 50 yards away
8 there is no salt.

9 MR. ROBISON: I understand.

10 DR. BONACA: Now you said this piping is wrapped
11 on the outside, so there is some level of protect. Could
12 you describe that?

13 MR. ROBISON: It's epoxy or coal tar type --

14 MR. BARTON: Bitumastic tape?

15 MR. ROBISON: Yes, yes -- and then a wrapping, a
16 careful prep -- and I made sure I checked with our civil
17 engineers. I said you didn't just backfill it with gravel
18 and knock holes in your coating and wrapping? -- and they
19 said no, we even had specifications on the soil and how we
20 put the soil back in around the coatings and wrappings to
21 make sure that we left it in a good as-prepared condition.

22 I think that has been evident in the very few
23 leaks that we have seen over time.

24 DR. BONACA: Any other questions?

25 CHAIRMAN POWERS: I guess we did go and check the

1 cited reference on the effects of soil and found that soils
2 do have an effect on the galvanic corrosion -- five orders
3 of magnitude is the corrosion potential --

4 [Laughter.]

5 CHAIRMAN POWERS: The point is if they are all the
6 same then it's the same.

7 DR. BONACA: Plus again I mean your inspections to
8 date have not revealed any general widespread defects. You
9 found isolated, localized effects that are indicative of
10 cells rather than -- you know.

11 CHAIRMAN POWERS: And it would take a pretty
12 heroic type failure to cause a problem.

13 DR. BONACA: I think so too. Yes.

14 CHAIRMAN POWERS: You could probably see the
15 ground washing away before you --

16 MR. ROBISON: Yes.

17 DR. BONACA: Yes. With those type of pipes, yes.

18 MR. ROBISON: I had one other item. I wanted to
19 bring word from our Region II inspection for you. You knew
20 it was going on this week.

21 DR. BONACA: Yes.

22 MR. ROBISON: We concluded the inspection items
23 last evening and checked all the checklist items and I think
24 there are going to be some general plant tours and some
25 regional management onsite today, but I wanted to let you

1 know that we did finish those. We do not believe, Duke does
2 not believe there are any open items remaining. We were
3 able to close them all.

4 CHAIRMAN POWERS: So you got a good close-out?

5 MR. ROBISON: Got a good close-out and we have a
6 formal public exit tomorrow morning.

7 CHAIRMAN POWERS: Okay.a

8 DR. BONACA: Okay. I have just one more question,
9 which is in October when you had still an open item on
10 GSI-190, you offered to the Staff to have -- to meeting
11 either the plant-specific approach or to commit to a generic
12 closure of GSI-190. Later, in November I believe, the NRC
13 presented a resolution on GSI-190 and set the requirements.

14 You have committed to a plant-specific resolution
15 of GSI-190. Am I correct?

16 MR. ROBISON: Yes, sir, we did commit to it.

17 DR. BONACA: You already have defined the program
18 and the NRC has recognized that in the SER at this stage, so
19 it is not anymore an option which way you are going to go.

20 I just want to make sure of that.

21 MR. ROBISON: Yes.

22 DR. BONACA: That I understood it correctly.

23 MR. ROBISON: Yes. It would be our intent to
24 follow the outline of what has been laid out in the SER,
25 follow another approved process if the Staff finds one, or

1 use the latest technology and thought processes that were
2 available in industry as people continue to develop the math
3 models associated with environmentally-assisted fatigue.x

4 DR. BONACA: But if I understand, you took one of
5 the NUREGs in which there were six locations which were
6 specifically inspected and you chose the six locations for
7 your inspections.

8 MR. ROBISON: Yes, we did.

9 DR. BONACA: And you are still committing to
10 those?

11 MR. ROBISON: Yes, sir, we are.

12 DR. BONACA: Thank you.

13 MR. ROBISON: Thank you.

14 DR. BONACA: Any other questions? No questions.
15 Thank you for the presentations.

16 MR. SEBROSKY: I am Joe Sebrosky. I am the
17 Project Manager for the safety review for the Oconee license
18 renewal application. I would just like the other members of
19 the staff to introduce themselves.

20 MS. COFFIN: Stephanie Coffin. I am a Tech
21 Reviewer, Division of Engineering.

22 MR. DAVIS: Jim Davis, a Tech Reviewer in the
23 Division of Engineering.

24 MR. GRIMES: And I am Chris Grimes. I am the
25 Chief of the License Renewal and Standardization Branch. We

1 are here to talk about these four things -- the resolution
2 of the open and confirmatory items in the SER; reliance on
3 the current licensing basis and the regulatory process; our
4 perspectives on one-time inspection; and also buried piping.

5 MR. SEBROSKY: If you look at the next slides,
6 Slides 3, 4 and 5, they simply list the open items and just
7 a brief one-line description of what the open items were,
8 and the purpose of listing them was to make sure that the
9 ACRS members didn't have any questions or comments that the
10 Staff could respond to.

11 DR. BONACA: Actually, isn't it the same open
12 times that you have in the SER and that you closed there,
13 that you presented last week? Correct?

14 MR. SEBROSKY: The answer to the first question is
15 it is almost the same as the list of the open items that
16 were in the SER in the June version. As Duke pointed out,
17 one of the open items that we added after the SER in June
18 was issued was the electrical insulated cables, so we added
19 that open item. We also added some discussion on ECCS
20 piping. We added some additional information because Duke
21 updated their license renewal application, so the SER
22 changed not only because of the closure of open items and
23 confirmatory items but for those other reasons.

24 The answer to your second question is, is this the
25 same information that we presented to the subcommittee, the

1 answer is yes. So unless there aren't any questions from
2 Slide 3, 4 or 5, I guess I would like to move on to Slide 6
3 and turn it over to my boss, Mr. Grimes.

4 MR. GRIMES: I propose that because of the nature
5 of this question and also the dialogue that you had a moment
6 ago regarding the definition of design basis event and what
7 it means relative to the licensing basis, I wanted to just
8 go back to the fundamental philosophy of license renewal.

9 We had an original attempt in 1991 to establish a
10 review scope for license renewal that would attempt to try
11 and identify unique aspects of the licensing basis, but even
12 at that time there was a vision that the renewal review
13 process would use the current licensing basis, and continue
14 it, and that we weren't going to attempt to try and
15 modernize plants, but we discovered in that effort that
16 isn't anything unique about aging effects, that Mother
17 Nature does not subscribe to the 40-year life principle --

18 [Laughter.]

19 MR. GRIMES: -- that was established in the Atomic
20 Energy Act, so in 1995 the rule was amended and it extracted
21 a definition that is contemporary in its explanation about
22 how a licensing basis is established. It refers to design
23 basis events, and by inference to 50.49. It describes it in
24 terms using design basis event as a term, but as we learned
25 at Oconee and as I expect we will find as we add

1 clarifications to the guidance, for some plants to say
2 design basis event means an analyzed design basis event, but
3 our purpose in license renewal was also to get systems,
4 structures and components that are relied upon to perform
5 functions associated with the licensing basis that might not
6 be an analyzed design basis event -- capital "D" -- capital
7 "B" -- capital "E" but like earthquakes, like loss of decay
8 heat removal, like high energy line breaks.

9 To the extent the design has evolved over time,
10 there are implied capabilities to cope with events and so we
11 overcame our linguistic problem by talking about using
12 scoping events and we explored 10 events as Duke described
13 in order to identify structures and components that were
14 relied upon to prevent or mitigate those events without
15 calling them design basis events or anything else -- there
16 is a capability in the plant design and we needed to make
17 sure that the structures and components that are going to be
18 subjected to an aging management review fit in that box.

19 We found, as Duke pointed out, that everything was
20 subjected to an aging management review that needed to be,
21 and I expect that we will run into that again in the future
22 but from a broader perspective I will also say that
23 maintaining the integrity of the current licensing basis and
24 carrying it forward is a fundamental principle of license
25 renewal.

1 After reflecting on it philosophically, whether or
2 not for example other nonsafety capabilities like the
3 cooling loop for the spent fuel pool or some of the other
4 things that the plant design does not live up to a
5 contemporary plant, we are still comfortable that the
6 process has its built-in protections so as the licensing
7 basis evolves in the future we will continue to have
8 programs that manage aging effects for those things that are
9 relied upon and we look into risk space as well to test that
10 theory, and I am very comfortable that that underlying
11 philosophy is still a sound one.

12 DR. BONACA: I just asked that question before
13 however because at some point I believe when you come to the
14 SRP definition or somewhere you will want to capture a
15 process that has some definition in current regulatory space
16 rather than having to say, well we look to the other -- let
17 me just give you an example.

18 When Oconee was designed and licensed it had one
19 auxiliary feedwater pump per plant and they were
20 interconnected. Right now the plant has three auxiliary
21 feedwater pumps per unit. In addition to that, because of
22 TMI action item I imagine, there was automatic initiation of
23 auxiliary feedwater in the plant -- I imagine as seen in the
24 other plant.

25 I assume that those requirements which were

1 imposed for whatever reasons by the NRC and were installed
2 are part now of what we call the licensing basis for the
3 plant, so that if Oconee will come with the original SAR,
4 Chapter 15, with only one pump starting at a given time and
5 not automatically but by operator action, you would contend
6 that the current licensing basis incorporates a different
7 design which captures three pumps and an automatic start.

8 That is what I meant by -- am I correct? I am
9 trying to understand if I am correct or not in calling that
10 current licensing basis. I am trying to learn.

11 MR. GRIMES: Well, the simplest answer that I can
12 give you is throughout this process we raised questions
13 about why is the plant licensed the way it is licensed and
14 when we get into circumstances like that and we ask the
15 question and we can't find the answer, it goes back to we
16 will put that into the space of determining whether or not
17 the current licensing basis needs to be changed.

18 Now I am trying to draw back on the SEP
19 experience. There are plants that don't have certain
20 capabilities and if that is the way the licensing basis is,
21 then that is the way that we will evaluate it for --

22 DR. BONACA: I understand that, but I think there
23 is a fundamental difference between the SEP, which was a way
24 of reconciling certain lacks of components, with new
25 requirements imposed. I imagine those three auxiliary

1 feedwater pumps per plant at Oconee all fall under the
2 Appendix B program.

3 I don't think that only the original one is on the
4 Appendix B and the other two are not.

5 MR. GRIMES: And that is where I'll hesitate
6 because I wouldn't make that presumption. The way that we
7 went through the scoping events is we said the ground rules
8 for evaluating the current licensing basis are you go find a
9 statement in the FSAR that describes a reliance on a
10 particular component or a statement in the regulations, but
11 some of the TMI action plan stuff got resolved on a
12 plant-specific basis and then through the inspection process
13 we looked to see whether or not the FSAR captured those
14 things that were relied upon to resolve those issues.

15 So we still rely on the process ultimately to have
16 identified changes in the licensing basis, and that is the
17 way that we screen the events. I don't know the specific
18 answer to your question and the Systems folks who we didn't
19 bring today could -- might be able to answer that.

20 MR. MATTHEWS: I might be able to --

21 DR. BONACA: I think for Duke we are satisfied
22 that the scope --

23 MR. MATTHEWS: I was just going to provide a
24 clarification that, in answer to your first question, I
25 think the answer is yes. It would be in the licensing basis

1 of the plant, but they wouldn't necessarily be scoped as
2 design basis events in the traditional terminology.

3 DR. BONACA: You know, I don't want to belabor the
4 issue with Oconee. I think we have seen it enough and the
5 fact that they have verified this and no additional
6 components were identified is comforting.

7 MR. MATTHEWS: And I do think, as I mentioned, we
8 will probably have to go through a similar exercise against
9 future applications and we have even talked about the fact
10 that as a result we may have to come to a rule change
11 eventually to address this, to remove this confusion that
12 exists with regard to the terminology used.

13 DR. BONACA: It is confusing. The point I am
14 making is more for the preparation of the SRP, which should
15 provide some clarification and hopefully will in this
16 particular area because it is confusing.

17 MR. MATTHEWS: Yes.

18 DR. BONACA: Okay, thank you.

19 MR. SEBROSKY: That was David Matthews, by the
20 way.

21 DR. SEALE: You still are.

22 MR. MATTHEWS: Still am.

23 [Laughter.]

24 MR. SEBROSKY: Moving on to the next slide, Duke
25 made a presentation about one-time inspections and this

1 slide basically reiterates and has one additional thought.

2 Duke has nine one-time inspections and as Duke, as
3 Greg Robison mentioned, the purpose of the one-time
4 inspection is to verify that aging effects are not occurring
5 such that an aging management program would be required.

6 The last bullet is just the basis for the Staff's
7 acceptance. If you go to our SER, you will find that we
8 found it acceptable because at present the aging effects are
9 expected to be slow-acting and can be resolved by the
10 established corrective action process.

11 That is our basis for acceptability.

12 The last issue that we were going to discuss today
13 was buried piping and if you to Duke's application, the
14 aging is actually managed by two preventative maintenance
15 activities. Greg mentioned one, the condenser circulating
16 water system internal coating inspection.

17 There is also another one. As you know, there is
18 a standby shutdown facility that has a buried diesel fuel
19 oil tank and there is also an internal inspection associated
20 with that.

21 If you go again to our SER and the basis for the
22 acceptability we mentioned the condenser circulating water
23 system, 11 foot diameter pipe, accounts for 80 percent of
24 the surface area of the buried pipe.

25 So that is all we have for presentation today.

1 Were there any questions?

2 DR. BONACA: Any other questions from the members

3 CHAIRMAN POWERS: Pretty straightforward. No.

4 DR. BONACA: Thank you for the presentations.

5 I would like to go around the table and see if
6 there are any additional comments from members regarding all
7 we have seen. Most members were at Oconee last week. Not
8 all of them, so any questions you have we should discuss
9 here.

10 CHAIRMAN POWERS: I see no particular questions.
11 I think we learned something from going and looking at
12 Oconee. It is a plant from an older era and I think we need
13 to give some thought to what we have learned from their
14 example on how it might be applicable to other plants. I
15 think they did a particularly impressive job.

16 I think it might be worthwhile to look and see if
17 there are areas that we can profitably curtail based on the
18 experience there, areas and methods that we could profitably
19 highlight.

20 DR. UHRIG: Some of that might be related to the
21 results of the inspection but they may not be done in time.

22 CHAIRMAN POWERS: Okay, thank you very much.

23 DR. BONACA: Any additional questions from the
24 members?

25 [No response.]

1 DR. BONACA: Well, thank you very much. I turn it
2 back to you, Mr. Chairman.

3 CHAIRMAN POWERS: I have a problem. I am unable
4 to start the sessions on 50.72 until 4:15, so we will recess
5 until 4:15.

6 [Recess.]

7 DR. APOSTOLAKIS: We are back in session.

8 DR. SEALE: We've got a quorum at the forum, eh?

9 DR. APOSTOLAKIS: Yes. The next item is proposed
10 final amendment to 10 CFR 50.72 and 50.73. The cognizant
11 member is Dr. Bonaca. I will turn it over to him.

12 DR. BONACA: Okay. During the February 3 to 5,
13 2000 ACRS meeting the Staff presented its proposed final
14 amendment to 10 CFR 50.72 and 50.73. At that meeting the
15 Nuclear Energy Institute stated that the proposed amendment
16 would be beneficial for licensees and should be issued as
17 soon as possible with the exception of the following new
18 reporting requirement -- any event or condition that
19 required corrective action for a single cause or condition
20 in order to ensure the ability of more than one train or
21 channel to perform its specified function.

22 The Staff and the industry met on February 25th,
23 2000 to discuss this requirement. The Staff agrees that
24 there are problems with the requirement. The Staff plans to
25 meet on Monday, March 6, 2000 to decide on a course of

1 action and they plan to brief the ACRS on the resolution of
2 this matter on April 5-7, 2000 ACRS meeting.

3 I believe we have representatives of the Staff
4 here that can explain to us what the issue is and what you
5 expect to see as a closure and if also you believe that by
6 the April meeting we will be able to hear a report and write
7 a letter. Thank you.

8 MR. BARTON: You have got to come up front so we
9 can take a shot at you.

10 MR. ALLISON: My name is Dennis Allison. The
11 issues that arise with this criterion, which were really
12 unexpected to the Staff -- but assume you have a routine
13 monitoring program for heat exchangers to check for fouling
14 and you find that they are fouled, they are operable, but
15 there has been some fouling and you decide to clean two heat
16 exchangers.

17 That could be considered to fall under this
18 definition. It wasn't what was intended but it could be
19 considered a corrective action to ensure operability, so it
20 needs to be clarified and I would expect we'll clarify it
21 one way or the other.

22 I think at the meeting the licensees showed us
23 lots of things that we didn't want to be reported that would
24 be, so one could list a long list of exceptions. That is
25 not --

1 DR. BONACA: Could you give us an example of what
2 you would like to be reported and then an example of what
3 the industry is concerned that you agree that should not be
4 reported?

5 MR. ALLISON: Yes, sir. The kind of thing we
6 would like to be reported would be, say, you find a valve
7 stem that is cracked nearly through, so that 75 percent -- I
8 think there is an example in the package to that effect.

9 DR. BONACA: Yes. I remember that.

10 MR. ALLISON: Because you used the wrong material
11 in a plant modification, so it is corroding rapidly. You
12 decide that you need to replace the valve stem in the other
13 train as well, even though it might not be so bad yet, but
14 you are going to replace them with new material.

15 The reason we would like to see something like
16 that is that there is a little lesson there. Now in this
17 particular case that probably wouldn't end up in a bulletin,
18 but there is a lesson there. That is, if you use this
19 material you get rapid corrosion in this situation. Maybe
20 it is something we don't know about. So that is what we
21 would like.

22 I don't think there's a problem with that. That
23 is, I don't think the industry really objects to reporting
24 that situation.

25 Something that we wouldn't want to hear about is

1 the example I just gave of routine maintenance. You clean
2 two heat exchangers -- it could be considered.

3 A suggestion that licensees throughout the last
4 minute at the meeting and it seemed like it would work would
5 be to say something like the following -- an event or
6 condition that as a result of a single cause or condition
7 could have prevented fulfillment of the safety function of
8 two trains.

9 That is kind of a hybrid between two existing
10 requirements that they know how to interpret. They know how
11 to interpret the term "could have prevented fulfillment of
12 the safety function" and they know how to interpret the term
13 "as a result of a single cause or condition." So that is
14 another possibility.

15 DR. BONACA: But they agree that there is a
16 category of issues that should be reported?

17 MR. ALLISON: Well --

18 DR. BONACA: At least they are willing to
19 entertain that?

20 MR. ALLISON: Yes. I think industry is mostly
21 concerned with clarity and clarity can be interpreted to
22 mean unintended consequences, like a whole lot of situations
23 that shouldn't be reported.

24 They are also concerned about the process. They
25 don't want to have to review every deviation report,

1 thousands of things, all the maintenance things they do in
2 the plant for reportability. They would like something that
3 is a little easier to recognize and is clear.

4 DR. BONACA: Although it seems to me that I mean
5 for an event like the cracked stem you would have, you know,
6 a root cause evaluation most likely and that would end up in
7 the corrective action program with a pretty high level.

8 MR. ALLISON: I would think so, yes.

9 Now one of the things -- a technical point. I am
10 not sure that you want to get into it, but a technical point
11 is when we drafted that guidance we said that this applies
12 only to significant conditions adverse to quality as
13 discussed in Criterion 16, but in turns out there's a lot of
14 variability in QA programs and at one plant they have a
15 specific definition of that in their program that would be
16 about right and so by its terms this criterion would be
17 about right for that plant, but at another plant everything
18 they do to correct the problem is just a corrective action.
19 They don't make that distinction.

20 DR. BONACA: Do you believe that you will be able
21 to resolve this issue by the April meeting?

22 MR. ALLISON: Yes, sir. I have recommended that
23 we take a little more time -- I don't know if that will be
24 approved -- to try to make sure we get a criterion that does
25 not have unintended consequences and if that is approved I

1 will have it resolved by the April meeting. If it is not,
2 then it will be resolved sooner.

3 DR. BONACA: Okay. We are not going to write
4 anything until this issue is resolved.

5 DR. SEALE: Not until we have something to comment
6 on.

7 DR. BONACA: Because I mean we already commented
8 favorably regarding the changes that you were proposing to
9 make to 10 CFR 50.72 and 73 and the only issue of
10 significance to come up was this one, and so we will wait
11 until we hear from you. Okay?

12 MR. ALLISON: Now I guess there is a possibility
13 that we would decide to proceed rapidly by some means like
14 using this or deleting it or something and go ahead. There
15 is that possibility but it doesn't seem like a realistic one
16 to me.

17 DR. BONACA: Okay.

18 MR. SIEBER: Would this be one of those issues
19 that one would call a process issue as opposed to a
20 technical issue?

21 CHAIRMAN POWERS: I don't know.

22 MR. SIEBER: If it's really truly a process issue,
23 then they can go ahead without us.

24 DR. BONACA: Well, yes -- you mean without our
25 review?

1 MR. SIEBER: Yes.

2 MR. DUDLEY: The technical issue involved with
3 this is that they did delete the requirement to report
4 conditions outside the design basis and there is a subset of
5 events that would have been reported that's trying to be
6 captured by this new criterion which are those events that
7 could lead to an inoperability, more than a train, looking
8 for a common cause failure.

9 It would be of interest to the rest of the
10 industry.

11 MR. SIEBER: So we have to see it before they can
12 go beyond that?

13 MR. DUDLEY: That's correct.

14 MR. SIEBER: In your opinion.

15 MR. DUDLEY: In my opinion it is how they finally
16 resolve the issue and the wording that is used because the
17 industry was saying with this reading every time they went
18 in to calibrate a piece of equipment, they would be
19 undertaking a corrective action due to instrument drift on
20 several instruments --

21 MR. SIEBER: That's true.

22 MR. DUDLEY: -- and would have to report it, and
23 taking it a little bit further, they were concerned that
24 every corrective action that they took within the plant
25 would need a root cause analysis to determine whether it

1 could result --

2 MR. BARTON: Reportable.

3 MR. DUDLEY: Whether it was reportable, and the
4 industry felt comfortable if they were already doing a root
5 cause analysis that they would already have that information
6 and that was probably an appropriate level to report.

7 MR. SIEBER: Thank you.

8 DR. BONACA: For our part I mean we need to have a
9 final resolution before we can make a judgment on other
10 resolutions so we will wait until we hear and we will not
11 write a letter now.

12 MR. ALLISON: Okay. Is there anything else?

13 DR. BONACA: Any other comments regarding this
14 issue or questions?

15 MR. BARTON: No questions, no comments. Thank
16 you.

17 DR. APOSTOLAKIS: Okay. I understand the Staff is
18 here for the next item.

19 MR. BARTON: But can you start before the posted
20 time?

21 DR. APOSTOLAKIS: A Federal employee told me I
22 could.

23 MR. BARTON: A Federal employee told you? Did you
24 believe him?

25 [Laughter.]

1 DR. APOSTOLAKIS: The next item is proposed Final
2 Revision 3 to Regulatory Guide 1.160, Assessing and Managing
3 Risk Before Maintenance Activities at Nuclear Power Plants.

4 The cognizant member is Mr. Barton, so he is in
5 charge.

6 MR. BARTON: Thank you, Mr. Chairman.

7 The last time we met with the Staff on this issue
8 was in November and at that time the committee recommended
9 that the proposed Rev. 3 to Reg Guide 1.160 be issued for
10 public comment.

11 We did have an additional comment though, and we
12 requested that our issue or definition of "unavailability"
13 be addressed.

14 During the comment period and resolution of the
15 comments. The comment period is over, the staff and
16 industry have I think reconciled the minor differences they
17 had on this Reg. Guide and the staff is here to present to
18 us how the guide has finally been resolved and to, I guess,
19 talk about the definition of unavailability, which will
20 close out this issue for the Committee.

21 DR. APOSTOLAKIS: This issue again?

22 MR. BARTON: Well, George.

23 DR. APOSTOLAKIS: This is one of the simplest
24 concepts, reliability.

25 MR. SCOTT: Okay. Good evening, I guess, almost.

1 MR. BARTON: Just about.

2 MR. SCOTT: Mr. Chairman and ACRS.

3 DR. POWERS: It hasn't even gotten good and
4 started yet.

5 MR. SCOTT: My name is Wayne Scott, I have been
6 acting since Rich Correia, who you all known and love, moved
7 on to NRR Projects back in November. As you said, Mr.
8 Barton, we have been through all these steps along the way.
9 We hope we have satisfactory resolution for your ears today,
10 and maybe this is our last time.

11 I want to point out one thing, by the way, that we
12 have said all along we were terms of Revision 3 to Reg.
13 Guide 1.160 and what we have really decided to do instead to
14 issue what the Reg. Guide people call a companion guide. At
15 this point in time the guide is called 1.XXX. It will have
16 a number different from 1.160. It will specifically address
17 the change in the rule and will endorse NEI's Section 11 of
18 their NUMARC 93-01 document.

19 So, rather than putting out a whole new Reg. Guide
20 and opening all the Pandora's box there and having them do
21 the similar thing with 93-01, they are issuing Chapter 11
22 uniquely, as well as a couple of pages to their appendices
23 that we will talk about, and we are endorsing it through a
24 separate Reg. Guide that is called the Companion Reg. Guide.

25 Our assumption is that shortly, you might say

1 maybe within a year or so, we will issue Revision 3 of Reg.
2 Guide 1.160 which will fold in more clarifications from the
3 baseline inspections and from inspections and changes in
4 oversight policy, program, all that sort of stuff, as well
5 as the issues with respect to the new (a)(4) into -- that
6 will be into Revision 3 of Reg. Guide 1.160 at a later date.

7 So, with that, I would like to turn over the
8 program to Dr. See-Meng Wong. Dr. Wong was the author, the
9 principal author of the NRC's initial Regulatory Guide in
10 this area before NEI decided to participate, so I think it
11 is appropriate that he take the floor.

12 MR. WONG: Good evening. I am See-Meng Wong from
13 the PSA branch and --

14 MR. BARTON: Welcome back.

15 MR. WONG: Thank you. Since we have been
16 scheduled for this last presentation for today, I thought it
17 was appropriate, this may be the end of the road for us.
18 But --

19 MR. BARTON: We can't afford to burn out any more
20 engineers, that is for sure.

21 MR. WONG: Right. I just want to briefly bring up
22 to date the Committee on what has transpired since the last
23 briefing to you on November the 4th. Essentially, on
24 November the 10th we provided a briefing to the Commission
25 on the status and the development of the Reg. Guide and

1 informed the Commission on the objectives. Our objective
2 was to endorse acceptable industry practices and also to
3 define an optional scoping criteria.

4 As a result of that briefing, we provided the
5 guidance package to the Commission for information on
6 November the 30th and sometime in December, we issued it for
7 public comment in the Federal Register. As of January 10th,
8 we have completed our 30 day public comment period on the
9 draft guidance.

10 The next slide, essentially, is probably where
11 most of the discussion is today, is on the public comments
12 that we received. We received comments from seven
13 utilities; from one state agency, which is the Illinois
14 Department of Nuclear Safety; Winston & Strawn, which is a
15 legal firm representing several utilities; and NEI.

16 The specific comments that we have gotten from all
17 these organizations essentially was to request an extension
18 of the 120 day implementation period. The requests varied
19 from 240 days to about a year. And, in fact, the request
20 from the utility that wanted a one year extension was so
21 that they could go and try to upgrade their program.

22 In fact, they provided a very detailed timeline of
23 what they have to do to scope, you know, the SSCs that they
24 need to be part of the (a)(4) assessments, the procedures,
25 the training and the testing of the program, and also a

1 self-assessment to make sure that they have got a good
2 program in place before the inspectors show up.

3 The second specific comment, this came about
4 actually from NEI, and it is really an industry proposal to
5 try to define a clear boundary between where the 50.65(a)(4)
6 and 50.59 interface. And in the package that we have
7 submitted to you, this will be on page 3, on Item 6, and
8 also on page 17 on Section 11.3.8.

9 The industry proposal is that they want to make
10 sure that for competency measures that address degraded
11 conditions prior to the performance of maintenance be
12 subject or be under the purview of the 10 CFR 50.59. And if
13 the competency measures is being used as part of risk
14 management action during the maintenance activity, they want
15 it to be subject to the (a)(4) assessment. What they are
16 trying to do is they want to avoid two assessments for
17 probably the same change in the conditions.

18 So, subsequent to the package that they have
19 provided to you, and I want to show you the language that
20 they have added which is not in your package, just for
21 discussion purposes. This is not in your transparency. On
22 page 3, in Section 11.3.2, they have added a note which says
23 that "If, during power operation conditions, the temporary
24 alteration associated with maintenance is expected to be in
25 effect for greater than 90 days, the temporary alteration

1 should be screen, and, if necessary, evaluated under 10 CFR
2 50.59 prior to implementation."

3 And in Section 11.3.8, at the end, very end of the
4 second paragraph they have added the sentence, or the
5 statement after the last sentence which said, "Since the
6 competency measures are associated with maintenance
7 activities, no review is required under 10 50.59 unless the
8 measures are expected to be in effect during power operation
9 for greater than 90 days."

10 This issue was discussed and presented to the
11 Commission by the people -- that are involved in the
12 development of the 50.59 regulatory guidance. Questions
13 were asked, why did you take 90 days? And the answer that
14 was given was it was arbitrary, they chose it at this time
15 without any good basis. Yes?

16 DR. APOSTOLAKIS: I have just a question a
17 clarification.

18 MR. WONG: Yes.

19 DR. APOSTOLAKIS: Could I take Regulatory Guide
20 1.177 which deals with outage times, --

21 MR. WONG: Yes.

22 DR. APOSTOLAKIS: -- and have some bounds on the
23 probability, the incremental probability of core damage and
24 so on?

25 MR. WONG: Yes.

1 DR. APOSTOLAKIS: Could I take that one and come
2 to you and argue that, you know, for 90 days or 100 days,
3 the incremental probability is below the limit, so I
4 shouldn't have to do this? Am I allowed by all this to do
5 this?

6 MR. WONG: Okay.

7 DR. APOSTOLAKIS: I mean this is a temporary
8 configuration, right?

9 MR. WONG: Right. The temporary configuration
10 they are talking about are these like scaffoldings that they
11 have in place.

12 DR. APOSTOLAKIS: So they are below the PRA
13 consideration.

14 MR. WONG: Below, right. It is probably not
15 modeled in the PRA.

16 DR. APOSTOLAKIS: Or maybe not at all.

17 MR. WONG: That is correct.

18 DR. APOSTOLAKIS: So why 90 days, why not a year?

19 MR. WONG: Well, if it is a year it is too long,
20 and -- well.

21 MR. BARTON: He said it is arbitrary, I don't know
22 why the 90.

23 MR. WONG: Right. Right.

24 MR. BARTON: But there is a requirement now, if
25 you gave a temporary modification, you have to do a 50.50.

1 Now, all of a sudden we are saying if it is only for 90
2 days, I don't want to do a 50.59. Is this what this is
3 saying?

4 DR. APOSTOLAKIS: Yes.

5 MR. WONG: Yes. Yes. This is what --

6 MR. SCOTT: If it is specifically --

7 DR. POWERS: For the maintenance.

8 MR. SCOTT: -- related to and required by the
9 maintenance activity. Basically, they are getting a little
10 bone here. And what we are talking about is, as See-Meng
11 mentioned, if they have to put up some scaffolding, if they
12 put some shielding in perhaps.

13 We even talking about tearing down maybe a little
14 wall or opening a door that normally is not open. If they
15 have to do that in order to perform the maintenance, then
16 the concept is they do, perform the maintenance, and then
17 put it back like-for-like, like it was, and if they can get
18 all done within arbitrarily chosen 90 days, and so far that
19 seems to be flying all right, because Gary Holahan basically
20 was one of the principal players in the decision to come up
21 with that 90 days. And he assures us that what we are
22 really talking about here is stuff that is not covered by
23 tech specs, it is not in a PRA, it is really of relatively
24 very low safety significance. So --

25 MR. BARTON: It is a temporary modification to the

1 plant.

2 MR. SCOTT: Well, --

3 MR. BARTON: Yeah, it is. Right?

4 MR. SCOTT: Yeah, except we had -- listening
5 yesterday at the Commission -- was it yesterday?

6 MR. WONG: Two days ago.

7 MR. SCOTT: Two days ago at the Commission
8 meeting, Harold Ray from San Onofre took exception with Tony
9 Pietrangelo talking about temporary alterations, temporary
10 mods, temporary changes, and what he really said, basically,
11 is if it is for maintenance and you it back like-for-like,
12 it is not a change, it is not an alteration, it is not a
13 mod. I don't know what the right word is, but it is a
14 temporary -- I looked through the thesaurus today in my word
15 processing system trying to find a better word to put into
16 this last piece of the Reg. Guide that is up there. But it
17 is a temporary --

18 DR. APOSTOLAKIS: But expected perhaps.

19 MR. SCOTT: Yeah.

20 DR. APOSTOLAKIS: Temporary expected activity.

21 MR. BARTON: To me it is a temporary, whatever you
22 want, if I put scaffolding up in the plant, I have got to a
23 safety evaluation of scaffolding. So all of a sudden I can
24 do all this stuff in 90 days and don't have to do it. I am
25 with you.

1 MR. SIEBER: A temporary mod could be a hose, a
2 hose or a jumper or a lifted lead.

3 MR. SCOTT: The idea is that --

4 DR. APOSTOLAKIS: Are you saying, John, that they
5 should do it?

6 MR. SCOTT: Yeah. As part of --

7 MR. BARTON: I am saying I don't understand why
8 all of a sudden the same thing I would do if I didn't do
9 maintenance, but put scaffolding up for a mod I am going to
10 do later, or some change I am going to do to the plant, I
11 have got to do an evaluation because it is a temporary
12 modification, I am going to have it in there for a while.

13 MR. SCOTT: The evaluation does not disappear, the
14 evaluation, however, is done under the aegis of the (a)(4)
15 safety assessment and management of the risk as opposed to
16 through the process of 50.59. That is really the change.
17 The assessment we expect, the NRC's expectation is the
18 evaluation of whatever they evaluate when they put up
19 scaffolding, that evaluation will nonetheless take place, an
20 engineering evaluation of hanging lead shielding on a pipe
21 or whatever they do with that sort of stuff. Those kinds of
22 things will still have to be done, but they won't have to go
23 through the formal 50.59 process, they will be handled
24 through the maintenance risk assessment and risk management
25 process.

1 DR. APOSTOLAKIS: So Mr. Ray disagreed with the 90
2 day?

3 MR. WONG: No, no, he didn't.

4 MR. SCOTT: No, he didn't. No, he just said,
5 basically, it is not a temporary alteration if it is
6 something you are going to do for maintenance and then put
7 it back in place. A temporary alteration is something of
8 long-term that is actually altered like the lifted leads.

9 DR. BONACA: Or like lead shielding. I mean I
10 know of some cases in the past where I have seen that the
11 safety evaluation helped identify some significant issue
12 that maintenance people totally missed.

13 MR. SCOTT: Sure.

14 MR. WONG: Sure.

15 DR. BONACA: And so it was useful in that sense
16 because it focused the evaluation on some significant issues
17 you had to consider. So I am not as comfortable as other
18 people seem to feel, but --

19 MR. WONG: Well, given the slight discomfort, this
20 is what we attempted to put some clarification statements in
21 our Reg. Guide in the implementation section, and this is
22 what we have crafted, that the assessment does not relieve
23 the licensee from obligations to his license or the
24 regulations, and the exemption requirements in 10 CFR 50.90
25 remain effect, and the intent here is to eliminate

1 overlapping requirements for assessments which could be
2 considered to exist under 10 CFR 50.65(a)(4) and 10 CFR
3 50.59. This clarification applies to temporary alterations
4 directly related to and required to support a specific
5 maintenance activity being assessed.

6 DR. BONACA: Okay.

7 MR. WONG: There is also the thought that we will
8 see how it is being implemented. If there is going to be an
9 abuse, we may just make a revision and maybe shorten the
10 time or rescind this.

11 DR. SEALE: What are you guys going to do if the
12 scaffolding suddenly shows up two weeks after it has been
13 taken down after being up for 90 days?

14 MR. SIEBER: A violation.

15 MR. SCOTT: Well, we thought about that, and one
16 of the issues in that area, we think that what is going on
17 in the industry these days is a real stretch for
18 profitability, and we have discussed that specific issue.
19 What if they take a door out and then -- for 89 days and
20 then they put it back in and take it back.

21 We don't really expect to see that for the simple
22 reason that it costs money to take that scaffolding down and
23 put the scaffolding back up. So it would seem to us to be a
24 lot simpler process, if they are going to leave that
25 scaffolding up and they want it up for a longer time, that

1 they should go right to the 50.59 in the beginning, or at
2 least as soon as they recognize that they are going to pass
3 the 90 day barrier.

4 And it is our opinion, I think that the cheaper
5 method is to do the 50.59 than to go through all the
6 rigmarole of tearing down the scaffolding and putting it
7 back up.

8 MR. SIEBER: That's true. I guess one way to look
9 at it, though, is if you are going to do a temporary mod
10 inside the boundary of the equipment you are working on,
11 let's say you are going to overhaul a pump, okay, and your
12 mod puts scaffolding around the pump, you know, you could
13 put that right into 50.65(a)(4) without any problem at all.

14 But if your modification affects some other
15 independent piece of safety-related equipment, it seems to
16 me to be more pertinent to do a 50.59 because now you can
17 take two trains out, where you can take two alternate pieces
18 of equipment out if the modification is incorrect or it
19 fails.

20 MR. SCOTT: Well, that should be, in my opinion,
21 that should be part of the overall assessment that the
22 licensee makes.

23 MR. SIEBER: Under (a)(4).

24 MR. SCOTT: Under (a)(4), integrating all those
25 aspects of the activity.

1 DR. POWERS: It sounds to me like they are making
2 a first step toward a risk-informed 50.59 here in this one
3 narrow area.

4 MR. SIEBER: That's true. In some plants, though,
5 it is maintenance people that do the (a) (4) evaluation
6 versus engineering and operations that do 50.59, so it is
7 two different levels of expertise and I am not sure they are
8 equivalent.

9 MR. SCOTT: Well, we expect that is going to have
10 to change, other people getting involved.

11 DR. POWERS: You suspect it is going to have to
12 change because of the language of 50.65(a) (4)?

13 MR. SCOTT: Sure.

14 MR. SIEBER: All right.

15 MR. WONG: Okay? Our other comments are
16 essentially very, very minor comments. In response to Mr.
17 Barton's questions, there were comments on unavailability,
18 but I think we have essentially beaten that to death, and
19 the definition that is provided in your package has been
20 agreed to by all the organizations that we know of except
21 WANO.

22 And when it was first proposed I really Professor
23 Apostolakis wanted to burn away that definition, but we made
24 an attempt to try to come up with the best that we could
25 have, and to try to clean it up so that it addresses

1 specifically the practical aspects of what we are trying to
2 use the definition for, which is to track the unavailability
3 of the equipment for the purposes of maintenance. So other
4 comments essentially are just choice of words, adjectives
5 and we have had a meeting with NEI to come to agreement with
6 what the words should be so that it provides clarity in the
7 guidance. Okay.

8 DR. APOSTOLAKIS: Now, let me understand this
9 definition in Appendix B.

10 MR. WONG: Okay.

11 DR. APOSTOLAKIS: When you say planned unavailable
12 hours plus planned -- unplanned unavailable hours divided by
13 the required operational hours, what exactly does
14 unavailable mean? I mean this is a definition of
15 unavailability. Does it include -- is it only the time that
16 you took it out to do something to the equipment?

17 MR. SCOTT: In Maintenance Rule space something is
18 not available if it is unable to perform the function that
19 got the SSC in the Maintenance Rule in the first place.

20 DR. APOSTOLAKIS: So this is only for maintenance,
21 this definition? The fact that it may be available in this
22 sense, but fail during the demand is not included here.

23 MR. SCOTT: I reckon that is true.

24 DR. APOSTOLAKIS: And that is --

25 MR. SCOTT: We are really looking at treatment of

1 systems in the Maintenance rule where, you know, the rule is
2 monitoring the effectiveness of the maintenance. And, so,
3 as you pointed out in your letter, it depends on whether it
4 is a standby piece of equipment or continually running, and
5 that sort of thing.

6 DR. APOSTOLAKIS: You actually read it. Good.

7 MR. SCOTT: A couple of months ago I had it
8 memorized, sir.

9 [Laughter.]

10 MR. SCOTT: We have, on this subject of
11 availability, we have had -- gracious, we probably have our
12 own TAC number for unavailability. And we have had people
13 going to national conferences and international conferences.
14 This is not just something that we just made up, you know.

15 DR. APOSTOLAKIS: No, I realize that.

16 MR. SCOTT: Right.

17 DR. APOSTOLAKIS: But I would be much happier if
18 you explained that this is a definition that applies, you
19 know, to these issues. I mean I guess it is understood
20 because you continue and talk about -- I mean you go on and
21 talk about maintenance activities and testing and so on.

22 MR. SCOTT: It also is involved very much in the
23 new performance indicators. I assume you have been involved
24 in all that.

25 DR. APOSTOLAKIS: Yes, and I have the same problem

1 there.

2 [Laughter.]

3 DR. APOSTOLAKIS: Let's see, what are we doing
4 here, Mr. Barton? Are we going to approve this?

5 MR. BARTON: Well, that was the intent, yes.

6 DR. SHACK: Now, what is the status of that
7 language? I mean that is -- the staff is now proposing to
8 approve the NEI document with that language added to the
9 sections and you are going to add that language to your Reg.
10 Guide and that is now staff approved and you are asking us
11 to approve that?

12 MR. SCOTT: We are at the point right now where we
13 have a Regulatory Guide -- oh, you are talking about this?

14 DR. SHACK: Yeah.

15 MR. SCOTT: Yes.

16 DR. SHACK: The Regulatory Guide plus that
17 language and the NEI guide that we have in our hand, plus
18 that language.

19 MR. SCOTT: Exactly right. That is the package.

20 DR. SHACK: You have approved that and now the
21 question is, are we going to approve it?

22 MR. BARTON: That is the question.

23 MR. SCOTT: Right. Exactly right.

24 DR. APOSTOLAKIS: Is it possible to add three
25 words here somewhere, or is it too late? Unavailability due

1 to maintenance operations is defined as follows. That is
2 correct, if you put those words "due to maintenance
3 problems."

4 MR. SCOTT: I am sure when you ask that question
5 you really don't have a good feel for what it would take to
6 make the change, not just in our Reg. Guide, that is not the
7 issue, the issue is -- is Don Dickman here? No. Throughout
8 all the apparatus that collect unavailability data, that have
9 been set up, the data systems, the performance indicators,
10 the agreements with INPO and -- truly, I haven't been to
11 those meetings, so I don't know how all those other people
12 are, but to make a modification like that would be, for our
13 purpose, for this purpose, would be correct, but no easy
14 thing to do, sir.

15 MR. GILLESPIE: George, let me make sure I
16 understand, because we collectively may not be
17 communicating. The unavailability here is the same as
18 oversight, it is not just unavailability from maintenance.
19 If you have a demand failure and you find something
20 inoperable, that downtime also counts on the unavailability.
21 It is exactly the same unavailability that we talked about a
22 little earlier when the oversight group was here.

23 DR. APOSTOLAKIS: Yes, but, again, that is a
24 little different.

25 MR. GILLESPIE: It is not the reliability, it is

1 not the demand failure, but if you demand it and then find
2 out it is inoperable, --

3 DR. APOSTOLAKIS: Yes.

4 MR. GILLESPIE: -- that time of inoperability then
5 starts accumulating as part of the numerator of the
6 fraction. So it is not the same as what you just so.

7 DR. APOSTOLAKIS: No, I understand that.

8 MR. GILLESPIE: Okay.

9 DR. APOSTOLAKIS: Let's say you are testing
10 something every first of the month, for example.

11 MR. GILLESPIE: Right.

12 DR. APOSTOLAKIS: And you find out that the first
13 of February -- first of January was okay, first of February
14 was not. And then somehow you find out that it had been
15 failed for six days.

16 MR. GILLESPIE: Yeah.

17 DR. APOSTOLAKIS: So that, those six days will be
18 part of the unplanned unavailable hours.

19 MR. GILLESPIE: Yes.

20 DR. APOSTOLAKIS: Okay. But that still does not
21 account for the fact that it may have been available for all
22 this period, but it failed due to something that happened
23 during the demand.

24 DR. SEALE: Yes.

25 DR. APOSTOLAKIS: That part is not here. And all

1 I am saying is, if you say that this is due to -- I mean we
2 have to find the words. You are right, it is not just
3 maintenance.

4 MR. GILLESPIE: Yeah, and this is why we are
5 groping now in working with Research to try to find the
6 corresponding reliability or demand measure that goes with
7 this as a set, and we are just not there.

8 DR. APOSTOLAKIS: If we could put an asterisk
9 there, put at the end something that this is not the
10 unavailability that we are talking about in PRAs, this is
11 not the unavailability we are talking about in reliability,
12 this is not the unavailability that you will find defined in
13 a book. This is not it. There is nothing wrong this.

14 MR. GILLESPIE: You're right.

15 DR. APOSTOLAKIS: As long as you make it clear
16 that you are talking about this particular thing. You are
17 saying, administratively, that is not easy.

18 MR. WONG: Well, we can suggest it to NEI, because
19 that is there document.

20 DR. APOSTOLAKIS: Well, they know what it is,
21 right.

22 MR. WONG: Yes.

23 DR. APOSTOLAKIS: Yes.

24 MR. WONG: I think we can try to do that. Okay.

25 MR. BARTON: Let's go back to the definition of

1 the -- I am tired of unavailability, the other one, the
2 50.59 issue.

3 MR. WONG: Okay.

4 MR. BARTON: I need to see the words again. Let
5 me ask you something.

6 MR. SINGH: I will get a copy.

7 MR. BARTON: I am going to do a refueling outage,
8 I am going to do 489 maintenance items, and I am going to
9 erect scaffolding all of the place, take doors down, put
10 shielding all over the place.

11 MR. SCOTT: There is a caveat that says this is
12 issue is an at power issue.

13 MR. BARTON: It is a what?

14 MR. SCOTT: At power.

15 MR. WONG: At power.

16 MR. SCOTT: We are not trying to change the
17 licensee's outage.

18 MR. BARTON: That is why I wanted to see this
19 again, because I have got a lot of concerns if I just want
20 to do 50.59, I can do all kinds of modifications, and put
21 all kinds of stuff in the plant and leave it there for 90
22 days.

23 DR. BONACA: But even at power, 90 days, now they
24 were doing, they are making changes every day pretty much,
25 taking out some systems, components, putting them back in.

1 So now you have all the scaffolding and you are not
2 evaluating the impact of the scaffolding on -- are you
3 evaluating the impact every day as you do it?

4 MR. SCOTT: Every time there s a change. That is
5 the issue with the (a)(4), when there is a change in the
6 configuration of the plant, then there should be a
7 reassessment.

8 DR. BONACA: A reassessment, and that reassessment
9 will include the temporary modifications that are in place?

10 MR. SCOTT: That is the intent, yes. That is the
11 Commission's expectation.

12 MR. BARTON: That will now require that be done.

13 MR. SCOTT: Right. Essentially, what had been
14 being done before under 50.59 in this area would move over
15 under the responsibility --

16 MR. BARTON: 50.65(a)(4).

17 DR. BONACA: So you would have to perform it under
18 your PRA evaluation or whatever, Maintenance Rule.

19 MR. BARTON: Under (a)(4).

20 DR. BONACA: And that temporary addition or
21 whatever, alteration, will have to be considered.

22 MR. SCOTT: Yes.

23 DR. BONACA: For all the 90 days, on every change
24 you may.

25 MR. SIEBER: That's okay.

1 DR. BONACA: Oh, yeah, in principle it is okay. I
2 am trying to figure out all the thousand possible ways it
3 can fail.

4 MR. SCOTT: Yes, me, too. This issue arose when
5 somebody --

6 DR. BONACA: They always talk about, you know,
7 everything is perfect out there. Why is an organization
8 with other people -- and things always, this kind of stuff
9 always falls into crack. Oh, we didn't consider -- oh, we
10 didn't consider -- oh, we missed that, you know. I mean,
11 have you heard that before?

12 DR. POWERS: Never, Mario.

13 MR. SIEBER: I haven't either.

14 DR. POWERS: At his utilities, nothing will ever
15 fall in the crack.

16 MR. SIEBER: But things fall through the crack
17 whether it is 50.59 or 50.65(a)(4), you know, same crack.

18 MR. SCOTT: The issue as raised to us, that we
19 said, oh, gosh, let's think about that, was the issue of a
20 licensee having, say, valves in the overhead that needed to
21 be testing once a year. And so they put up -- they open a
22 maintenance activity, they put up the scaffolding, they test
23 the valves, and they leave the scaffolding up and they don't
24 close the maintenance activity.

25 MR. SIEBER: Right.

1 MR. SCOTT: And any time anybody would point out
2 at it, the issue, oh, well, we are still doing maintenance.
3 So the scaffolding stays up forever because every year they
4 walk up it and test the valves. So we said that is out of
5 the question, we don't want that to happen. We want people
6 -- our expectation is that they will do these things,
7 perform the maintenance, and then put them back the way they
8 were.

9 And if we find the licensees taking advantage of
10 this issue, then we are going to revisit it.

11 DR. BONACA: I guess the concern is already we
12 attempted to address within the Maintenance Rule the issue
13 of multiple configurations and complex configurations,
14 including multiple components. Now, we are addressing the
15 issue of adding to that.

16 MR. SCOTT: Temporary alteration.

17 DR. BONACA: Temporary alterations that would be
18 there in place overlapping for periods of time which would
19 make the configurations even more complicated.

20 MR. SCOTT: That certainly is true. But the risk
21 -- the assumption in all this issue is that the risk of this
22 activity is so low, it is not covered by tech specs, it is
23 not covered by any regulation beyond the 50.59 sort of
24 thing.

25 MR. SIEBER: Let me ask a simple question. It was

1 our practice back when I worked in power plants to specify
2 in a lot of maintenance procedures what temporary mods like
3 jumpers and lifted leads or what-have-you, where they were
4 to be installed and all that, and then when the procedure
5 was approved, a 50.59 evaluation was done on that procedure.

6 MR. SCOTT: Right.

7 MR. SIEBER: Does that make you redo 50.65(a)(4)
8 for all those changes that were already approved in the
9 procedure, temporary mods?

10 MR. SCOTT: I have to say yes because (a)(4) is an
11 integration of the status of the plant at any particular
12 time.

13 MR. SIEBER: Right.

14 MR. SCOTT: And if a new activity, maintenance
15 activity comes along, then that activity and its associated
16 pieces have to be assessed.

17 MR. SIEBER: So the burden goes up then for the
18 licensee, because he ends up doing it twice.

19 MR. GILLESPIE: Yeah, I think one of -- what
20 brought this to the fore was (a)(4) and the requirements of
21 (a)(4) exist no matter what.

22 MR. SIEBER: Right.

23 MR. GILLESPIE: So then the question was, do I
24 have to do 50.59 in addition, or is what I did for (a)(4)
25 good enough to fill both slots? So this doesn't change the

1 requirements under (a)(4), it is just that we hadn't thought
2 that part of the risk to the plant is heavy loads, it is
3 staging, it is putting those jumpers in. But, in fact, the
4 way (a)(4) was worded, it did already encompass this. And
5 when people visualize that, they said, okay, now we have to
6 do it under (a)(4), and, oh, shoot, now we have to do it
7 under 50.59. So now we are doing the same assessment twice
8 for everything, and this was an attempt to say, no, one
9 assessment is okay.

10 DR. POWERS: This is really not the same
11 assessment because the standard --

12 MR. GILLESPIE: Different. Different. Okay.
13 This is probably considered less onerous than the 50.59.

14 DR. POWERS: You have got more freedom under 65
15 than you do under 59.

16 MR. GILLESPIE: Yeah, you do. Yes.

17 DR. POWERS: Because one of them is a minimal
18 increase and the other one is a change in risk.

19 MR. GILLESPIE: Yeah, absolutely.

20 DR. POWERS: It is really just a risk management.

21 MR. GILLESPIE: It says manage and assess, right.

22 DR. POWERS: That's right.

23 MR. GILLESPIE: So you need enough information to
24 manage and assess. So it was kind of a double jeopardy.
25 The utilities were going to be stuck with both requirements,

1 and then what was the proper interface? So, and that is how
2 this really came about. But it doesn't really change
3 (a)(4), it just caused us to focus on what (a)(4)
4 encompassed.

5 MR. SIEBER: Thank you.

6 DR. BONACA: I guess just one last thing. My only
7 concern I am thinking about how people operate, and if you
8 are exercising a PRA, you are able to address multiple
9 changes there. I am not sure that you are going to reflect
10 the scaffolding in the PRA. You are simply going to perform
11 an evaluation and say, does it impact this area?

12 Now, I am trying to think how the PRA analyst
13 which doesn't live inside the plant with the maintenance
14 people is going to evaluate this consideration of all these
15 added components which are not in the PRA, to his PRA
16 evaluation.

17 MR. GILLESPIE: Yeah, this is much easier guidance
18 to say it looks good than it is to implement. This is going
19 to be a challenge because it is a different animal.

20 DR. BONACA: Oh, sure.

21 MR. GILLESPIE: And we are going to be looking at
22 things like the PRA analyst match of the maintenance guy,
23 where the maintenance guy has to figure -- think about
24 single failure-proof cranes, heavy loads over pumps. And so
25 you have got this spatial distribution that the PRA guy is

1 normally not interested in, but now he has to be interested
2 in it.

3 So it is a different kind of analysis. It is
4 going to be interesting to see how the industry implements
5 this, because their traditional organizations are really not
6 set up right now to step right into this. They have all the
7 right people, they are just not necessarily in the right
8 work units to integrate this together. Yeah.

9 DR. BONACA: That is exactly why I was asking
10 myself the question. I was trying to figure out from memory
11 how they work out, and they don't converge oftentimes.

12 MR. GILLESPIE: Which I think may lead to the
13 other side that they had, that 120 days may not actually be
14 enough time to implement what has come out of all the
15 discussions on this, if this represents kind of the end
16 point. And many of the people who commented said, we didn't
17 -- we are going to need more time now.

18 MR. WONG: Okay. The last slide is, where do we
19 go from here? Our target date to provide the final guidance
20 package to Commission for review and approval is March the
21 31st and the Commission can decide, given the comments that
22 we received, whether they will extend the 120 days, that is
23 their prerogative. That is all we have.

24 DR. APOSTOLAKIS: So the Committee action is a
25 letter?

1 MR. WONG: Yes.

2 MR. SCOTT: Yes.

3 DR. POWERS: Could you just sketch out for me one
4 more time about this business on a companion guide?

5 MR. SCOTT: It is a separate Regulatory Guide. It
6 will endorse the revised Section 11 of NUMARC 93-01, and has
7 words in it that states it works, essentially, in concert
8 with 1.160. So it focuses completely on (a) (4) as does the
9 Section 11.

10 DR. POWERS: Really, all I am interested in, is
11 there anything that is going to come back to us on this?

12 MR. SINGH: No.

13 MR. BARTON: This is it.

14 DR. POWERS: This is it?

15 MR. WONG: This is it. Yes.

16 DR. POWERS: It was a scheduling concern.

17 MR. BARTON: No, it is not Rev. 3 to Reg. Guide
18 161. The title of this thing is going to be what?

19 MR. SCOTT: Companion Guide 1.XXX.

20 DR. SEALE: Well, right now it is Reg. Guide 1.XXX
21 and Research won't assign a number to it until after the
22 Commission approves it and it heads over there for --

23 MR. BARTON: Is it still Rev. 3? Is it still Rev.
24 3?

25 MR. SCOTT: No.

1 MR. BARTON: It is just Reg. Guide 1.XXX?

2 MR. SCOTT: It is an independent Reg. Guide, yes,
3 sir.

4 MR. SIEBER: It doesn't have a Rev. yet.

5 MR. BARTON: And it is called Assessing and
6 Managing Risk Before Maintenance Activities at Nuclear Power
7 Plants?

8 MR. SCOTT: Right.

9 MR. WONG: Yes.

10 MR. BARTON: Okay. Any other questions of the
11 staff? Does the Committee feel comfortable when I write
12 this letter that we endorse proceeding for industry use with
13 what we heard?

14 DR. SEALE: I take it there is no one from
15 industry here?

16 MR. SCOTT: Biff Bradley was going to be present.
17 I talked to him this afternoon, he said that he feels
18 comfortable not being here, that they are in complete
19 agreement with what we are up to and so we end here.

20 DR. APOSTOLAKIS: I might add an additional
21 comment, I don't think it is worth the Committee's time to
22 argue about availability, but I think, for the record, it
23 should be there.

24 DR. POWERS: George, we can include in the meeting
25 minutes a protracted discussion with references, citations

1 and equations.

2 DR. APOSTOLAKIS: Oh, no, no, no. It is not worth
3 it. It is not worth it.

4 DR. POWERS: Oh.

5 DR. APOSTOLAKIS: It is a simple definition.

6 DR. POWERS: Mr. Barton, are we through with this
7 subject?

8 MR. BARTON: Yes, I think so. I'll turn it back
9 to you.

10 DR. APOSTOLAKIS: Are you happy with this?

11 MR. BARTON: I am not sure.

12 DR. APOSTOLAKIS: Oh.

13 DR. POWERS: I think we need to talk just a little
14 bit about this, but, on the other hand, what I see, my
15 personal view on this is that you are carving out a little
16 space to begin the construction of a 50.59 that is
17 risk-based. Okay. And this is a good thing.

18 DR. APOSTOLAKIS: Then I support it.

19 [Laughter.]

20 MR. GILLESPIE: Okay. Take down what George says.

21 DR. POWERS: If -- if and when you can get your
22 availability definition.

23 [Laughter.]

24 MR. GILLESPIE: I will say, you have really seen
25 -- this is the -- I think when we look, as we are

1 approaching a risk-informed regime, of something more
2 risk-informed, this is the first place where we have seen
3 potentially actually an organizational impact on utilities
4 in how they perform a function.

5 DR. POWERS: That's right.

6 MR. GILLESPIE: So I think what you are seeing is,
7 in direct application of really what is the first kind of
8 manage and assess your risk, that we are going to see an
9 evolution that the traditional organizations are going to
10 have to adapt to to get the technical talents together that
11 need to do these things. So I think that is an interesting
12 note that is coming out of this, a revelation that
13 scaffolding and stuff is part of risk. Not quantifiable,
14 but, you know. It is different, it is different.

15 DR. POWERS: The rule does not require them to
16 quantify it, it only says manage --

17 MR. GILLESPIE: Manage and assess. So you have to
18 cognizant of it and be able to recognize its potential
19 impacts. Yes.

20 MR. BARTON: What I am struggling with, is it
21 really going to be easier for them to add this to their
22 assessment of maintenance, or is it going to be answer six
23 questions on a pre-screening, on a preliminary evaluation to
24 a safety evaluation? And I don't know why I wouldn't think
25 the six questions and check them all off and be done with

1 it. But, anyhow.

2 DR. POWERS: Because you can't. Because you
3 can't. Still, not matter you have done, you are blocked
4 with 65(a)-4. It says you have got to manage and assess.

5 MR. SIEBER: You are blocked by the rule, and it
6 will be an extra burden, and in some cases it will be a
7 double burden. That's the way it is.

8 DR. BONACA: Well, organizationally, it is going
9 to be a challenge, because 50.59 today is as incompatible
10 with PRA as it was before.

11 DR. POWERS: That's right.

12 DR. BONACA: You are going to have a lot of, you
13 know, by having been there and knowing what it is, you don't
14 want to have PRA people doing 50.59s because you get in
15 trouble with the NRC.

16 DR. POWERS: Well, and that is what they are
17 trying to do, is avoid having a bunch of 50.59 folks
18 intruding into the risk managing and assessing process.

19 Thank you, gentlemen very much.

20 MR. SCOTT: Thank you.

21 DR. SEALE: Thank you.

22 DR. POWERS: Let's see. Sherry, are we ready. I
23 don't have the tools of my trade here. I need my black
24 things. I think we can dispense with the recording at this
25 point.

1 [Whereupon, at 5:13 p.m., the meeting was
2 recessed, to reconvene at 8:30 a.m., Friday, March 3, 2000.]
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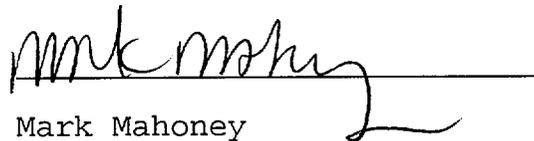
This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission in the matter of:

NAME OF PROCEEDING: MEETING: 470TH ADVISORY
COMMITTEE ON REACTOR
SAFEGUARDS (ACRS)

CASE NUMBER:

PLACE OF PROCEEDING: Rockville, MD

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.



Mark Mahoney

Official Reporter

Ann Riley & Associates, Ltd.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D. C. 20555

February 11, 2000

SCHEDULE AND OUTLINE FOR DISCUSSION
470TH ACRS MEETING
MARCH 1-4, 2000

WEDNESDAY, MARCH 1, 2000, CONFERENCE ROOM 2B3, TWO WHITE FLINT NORTH,
ROCKVILLE, MARYLAND

- 1) 1:00 - 1:15 P.M. Opening Remarks by the ACRS Chairman (Open)
 - 1.1) Opening statement (DAP/JTL/SD)
 - 1.2) Items of current interest (DAP/NFD/SD)
 - 1.3) Priorities for preparation of ACRS reports (DAP/JTL/SD)

- 2) 1:15 - 3:15 P.M. Development of Risk-Informed Revisions to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities" (Open) (GA/MTM)
 - 2.1) Remarks by the Subcommittee Chairman
 - 2.2) Briefing by and discussions with representatives of the NRC staff regarding the status of developing risk-informed revisions to 10 CFR Part 50 and related matters.

Representatives of the nuclear industry will provide their views, as appropriate.

- 3:15 - 3:30 P.M. *****BREAK*****

- 3) 3:30 - 6:00 P.M. Discussion of Proposed ACRS Reports (Open)

Discussion of proposed ACRS reports on:

 - 3.1) Low-power and Shutdown Operations Risk Insights Report (GA/MTM)
 - 3.2) Proposed Revision of the Commission's Safety Goal Policy Statement for Reactors (TSK/GA/PAB)

- 6:00 - 6:15 P.M. *****BREAK*****

- 4) 6:15 - 7:15 P.M. Discussion of Topics for Meeting with the NRC Commissioners (Open)

Discussion of issues associated with risk-informed regulation, including:

 - 4.1) Impediments to the increased use of risk-informed regulation (TSK/MTM)
 - 4.2) Use of importance measures in regulatory applications, impact of the scope and quality of the PRA on importance measures, and threshold values for importance measures (GA/AS)
 - 4.3) Technical Adequacy of Performance Indicators (JJB/NFD)

**THURSDAY, MARCH 2, 2000, CONFERENCE ROOM 2B3, TWO WHITE FLINT NORTH,
ROCKVILLE, MARYLAND**

- 5) 8:30 - 8:35 A.M. Opening Remarks by the ACRS Chairman (Open) (DAP/SD)
- 6) 8:35 - 9:15 A.M. Discussion of Topics for Meeting with the NRC Commissioners (Open)
Discussion of topics listed under Item 4.
- 9:15 - 9:30 A.M. *****BREAK*****
- 7) 9:30 - 11:30 A.M. Meeting with the NRC Commissioners (Open) (DAP, et al./JTL, et al.)
Meeting with the NRC Commissioners, Commissioners' Conference Room, One White Flint North, to discuss topics listed under Item 4 and other items of mutual interest.
- 11:30 - 1:00 P.M. *****LUNCH*****
- 8) 1:00 - 2:30 P.M. Technical Components Associated with the Revised Reactor Oversight Process (Open) (JJB/MTM)
8.1) Remarks by the Subcommittee Chairman
8.2) Briefing by and discussions with representatives of the NRC staff regarding the technical components associated with the revised reactor oversight process, including the updated significant determination process, technical adequacy of the current and proposed plant performance indicators, and related matters.
- 2:30 - 2:45 P.M. *****BREAK*****
- 9) 2:45 - 4:00 P.M. Oconee Nuclear Power Plant License Renewal Application (Open) (MVB/RLS/NFD)
9.1) Remarks by the Subcommittee Chairman
9.2) Briefing by and discussions with representatives of the NRC staff and Duke Energy Corporation regarding the license renewal application for the Oconee Nuclear Power Station and the associated NRC staff's Safety Evaluation Report.
- 4:00 - 4:15 P.M. *****BREAK*****
- 10) 4:15 - 4:45 P.M. Proposed Final Amendment to 10 CFR 50.72 and 50.73 (Open) (MVB/NFD)
10.1) Remarks by the Subcommittee Chairman
10.2) Discussions with representatives of the NRC staff regarding issues raised by the ACRS members during the February ACRS meeting, including the intent of the 10 CFR 50.73 requirement for reporting degraded components.

Representatives of the nuclear industry will provide their views, as appropriate.

- 11) 4:45 - 5:15 P.M. Proposed Final Revision 3 to Regulatory Guide 1.160, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants" (Open) (JJB/JDS/AS)
 11.1) Remarks by the Subcommittee Chairman
 11.2) Discussions with representatives of the NRC staff, as needed, regarding the proposed final revision 3 to Regulatory Guide 1.160.

Representatives of the nuclear industry will provide their views, as appropriate.

- 12) 5:15 - 6:15 P.M. Break and Preparation of Draft ACRS Reports
 Cognizant ACRS members will prepare draft reports for consideration by the full Committee.
- 13) 6:15 - 7:15 P.M. Discussion of Proposed ACRS Reports (Open)
 Discussion of proposed ACRS reports on:
 13.1) Technical Components Associated with the Revised Reactor Oversight Process/Technical Adequacy of the Current and Proposed Performance Indicators (JJB/MVB/MTM)
 13.2) Proposed Final Amendment to 10 CFR 50.72 and 50.73 (MVB/NFD)
 13.3) Proposed Final Revision 3 to Regulatory Guide 1.160 (JJB/JDS/AS)
 13.4) Oconee License Renewal Application (MVB/RLS/NFD)

FRIDAY, MARCH 3, 2000, CONFERENCE ROOM 2B3, TWO WHITE FLINT NORTH, ROCKVILLE, MARYLAND

- 14) 8:30 - 8:35 A.M. Opening Remarks by the ACRS Chairman (Open) (DAP/SD)
- 15) 8:35 - 10:15 A.M. Phenomena Identification and Ranking Table (PIRT) for High Burnup Fuel (Open) (DAP/MME)
 15.1) Remarks by the Subcommittee Chairman
 15.2) Briefing by and discussions with representatives of the NRC staff regarding the use of PIRT process for high burnup fuel.

Representatives of the nuclear industry will provide their views, as appropriate.

10:15 - 10:30 A.M. *BREAK*****

- 16) 10:30 - 11:30 A.M. Proposed Resolution of Generic Safety Issue B-17, "Criteria for Safety Related Operator Actions" (Open) (RLS/PAB)
 16.1) Remarks by the Subcommittee Chairman
 16.2) Briefing by and discussions with representatives of the NRC staff regarding the proposed resolution of Generic Safety Issue B-17.
- Representatives of the nuclear industry will provide their views, as appropriate.
- 17) 11:30 - 12:00 Noon Report of the Planning and Procedures Subcommittee (Open) (DAP/JTL)
 Report of the Planning and Procedures Subcommittee on matters related to the conduct of ACRS business.
- 12:00 - 1:00 P.M. *****LUNCH*****
- 18) 1:00 - 1:15 P.M. Future ACRS Activities (Open) (DAP/JTL/SD)
 Discussion of the recommendations of the Planning and Procedures Subcommittee regarding items proposed for consideration by the full Committee.
- 19) 1:15 - 1:30 P.M. Reconciliation of ACRS Comments and Recommendations (Open) (DAP, et al./SD, et al.)
 Discussion of the responses from the NRC Executive Director for Operations to comments and recommendations included in recent ACRS reports and letters.
- 20) 1:30 - 2:30 P.M. Break and Preparation of Draft ACRS Reports
 Cognizant ACRS members will prepare draft reports for consideration by the full Committee.
- 21) 2:30 - 7:00 P.M. Discussion of Proposed ACRS Reports (Open)
 Discussion of proposed ACRS reports on:
 21.1) Oconee License Renewal Application (MVB/RLS/NFD)
 21.2) Proposed Resolution of Generic Safety Issue B-17 (RLS/PAB)
 21.3) Low-power and Shutdown Operations Risk Insights Report (GA/MTM)
 21.4) Proposed Revision of the Commission's Safety Goal Policy Statement for Reactors (TSK/GA/PAB)
 21.5) Technical Components Associated with the Revised Reactor Oversight Process/Technical Adequacy of the Current and Proposed Performance Indicators (JJB/MVB/MTM)
 21.6) Proposed Final Amendment to 10 CFR 50.72 and 50.73 (MVB/NFD)
 21.7) Proposed Final Revision 3 to Regulatory Guide 1.160 (JJB/JDS/AS)

**SATURDAY, MARCH 4, 2000, CONFERENCE ROOM 2B3, TWO WHITE FLINT NORTH,
ROCKVILLE, MARYLAND**

- 22) 8:30 - 1:30 P.M. Discussion of Proposed ACRS Reports (Open)
(12:00-1:00 P.M. - LUNCH) Continue discussion of proposed ACRS reports listed under Item 21.
- 23) 1:30 - 2:00 P.M. Miscellaneous (Open) (DAP/JTL)
Discussion of matters related to the conduct of Committee activities and matters and specific issues that were not completed during previous meetings, as time and availability of information permit.

NOTE:

- **Presentation time should not exceed 50 percent of the total time allocated for a specific item. The remaining 50 percent of the time is reserved for discussion.**
- **Number of copies of the presentation materials to be provided to the ACRS - 35.**

ACRS BRIEFING

MAINTENANCE RULE GUIDANCE

March 2, 2000

Contacts:

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ACTIVITY SINCE THE NOVEMBER 4, 1999, ACRS BRIEFING

- **November 10 -- Commission briefing**
- **November 30 -- Provide guidance package to the Commission for information**
- **January 10 ----- Completed 30-day public comment period on draft guidance**

Public Comments:

- **Comments received from 7 utilities, one state agency, Winston & Strawn, and NEI**

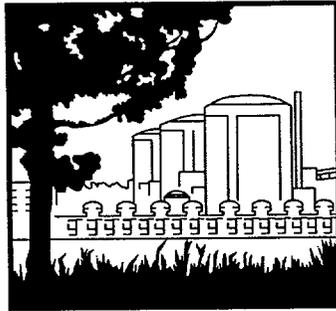
- **Specific Comments:**
 - **Extension of 120-day implementation period**
 - **(a)(4) interaction with 50.59**
 - **Minor technical/editorial clarifications**

Schedule:

- **03/31 -- Provide final guidance package to Commission for review and approval.**
- **120 days after Commission approval of guidance -- revised 10 CFR 50.65 becomes effective.**



Oconee License Renewal Project



Meeting with the Advisory Committee on Reactor Safeguards

March 2, 2000



Topics

- Scoping Methodology
- Insulated Cables & Connections
- Reactor Vessel Internals
- One-time Inspections
- Buried Piping

March 2, 2000

Oconee License Renewal Project

2

- License renewal scoping methodology relied on the current licensing basis definition of design basis events for Oconee
- At issue was whether the set of events that are considered by the methodology are sufficient for scoping
- The methodology was validated by a case study of 10 additional events which did not identify any SSCs that were not included in the original scoping results

- SER OI 3.9.3-1 was initiated following the on-site inspection review of Oconee operating experience
- An Insulated Cables Aging Management Program will be developed and implemented to manage aging effects during the period of extended operation
- The focus of the program is on cables and connectors in adverse, localized environments which include applicable aging effects from thermal, radiation and moisture environments

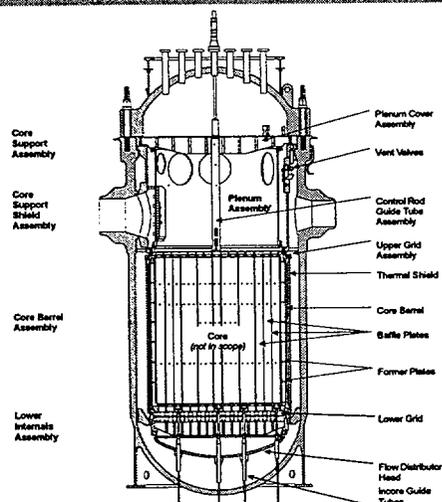
■ SER Open Items

- ◆ 3.4.3.2-2 Changes in Dimensions Due to Void Swelling
- ◆ 3.4.3.3-3 Cracking in RV Internals in Non-CASS Internal Components
- ◆ 3.4.3.3-4 Cracking of Baffle Former Bolts
- ◆ 3.4.3.3-5 Embrittlement of CASS RVI Components
- ◆ 3.4.3.3-6 Thermal Embrittlement of Vent Valve
- ◆ 4.2.5.3-1 Reduction in Fracture Toughness (TLAA)

March 2, 2000

Oconee License Renewal Project

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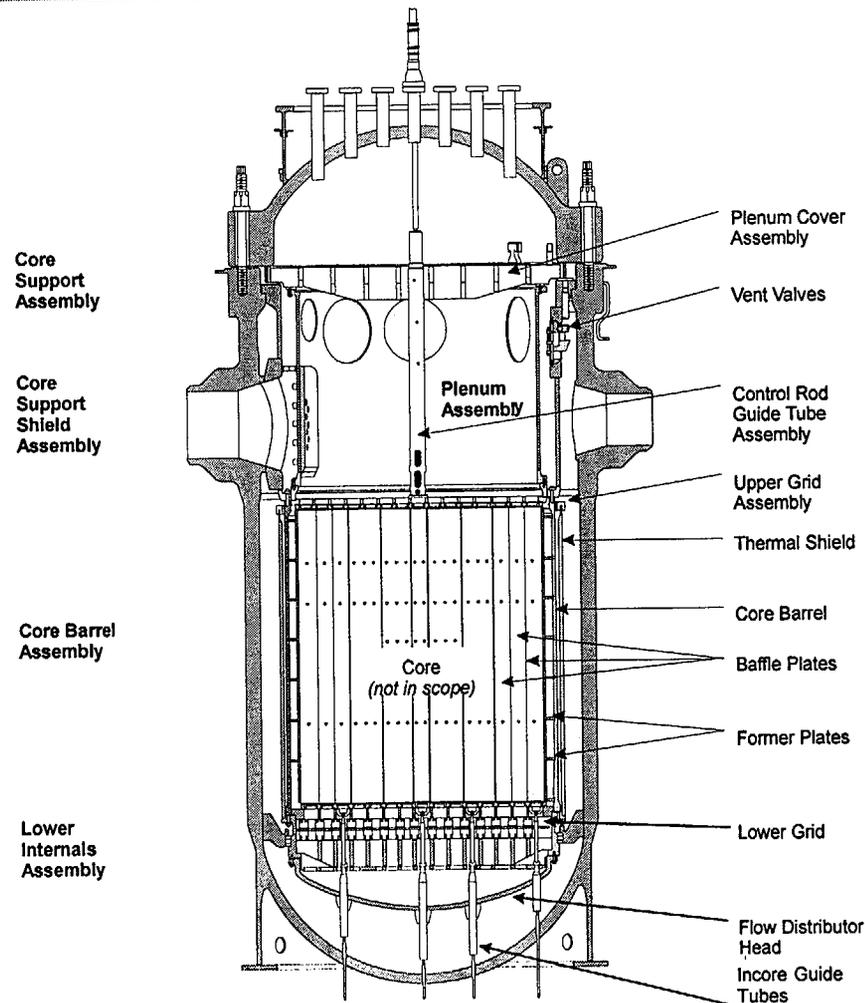


March 2, 2000

Oconee License Renewal Project

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Reactor Vessel Internals Description



March 2, 2000

Oconee License Renewal Project



Approach (Process vs Inspections)

- Duke proposed licensing a Reactor Vessel Internals Aging Management Program (process)
 - ◆ Included characterization of aging effects, analysis, development of any needed inspections (method, acceptance criteria, frequency, etc. .)
- As a result of staff reviews, an Inspection Program was developed which included:
 - ◆ Specific Timing of Inspections
 - ◆ Incorporated process within inspection program
 - ◆ Industry Participation
 - ◆ Reports
- Modifications of the Program will occur over time:
 - ◆ As Industry data and analysis are evaluated
 - ◆ Plant specific justification would be submitted for review if any inspection was determined not necessary

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Oconee Reactor Vessel Internals Inspection

- The Oconee Reactor Vessel Internals Inspection includes the following *three* interrelated inspections:
 - ◆ Baffle Bolts

Aging Effects – The aging effects of concern are (1) cracking due to irradiation assisted stress corrosion cracking, (2) reduction of fracture toughness due irradiation embrittlement, and (3) dimensional changes due to void swelling.
 - ◆ CASS

Aging Effects – The aging effects of concern for the reactor vessel internals items fabricated from CASS and martensitic steel are reduction of fracture toughness by thermal embrittlement and irradiation embrittlement.
 - ◆ Other Components

Aging Effects – The aging effects of concern are (1) cracking due to irradiation assisted stress corrosion cracking, (2) reduction of fracture toughness due irradiation embrittlement, (3) dimensional changes due to void swelling, and (4) loss of bolted closure integrity due to stress relaxation.

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One Time Inspections

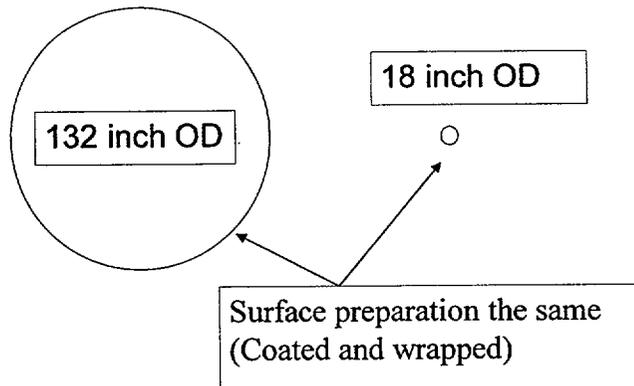
- One time inspections are aimed at verifying aging effects are not occurring. Any aging effects identified will require engineering evaluation and could result in further programmatic action.
 1. Cast Iron Selective Leaching Inspection
 2. Galvanic Susceptibility Inspection
 3. Keowee Air and Gas Systems Inspection
 4. Steam Generator Upper Lateral Support Inspection
 5. Pressurizer Examinations
 6. Reactor Building Spray System Inspection
 7. Reactor Coolant Pump Motor Oil Collection Tank Inspection
 8. Small Bore Piping Inspection
 9. Treated Water Systems Stainless Steel Inspection

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Buried Piping



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- Aging management by internal surface inspections
- Approximately 460,000 square feet (surface area of 10 football fields) covered by inspections
- Operating experience review identified very limited number of through-wall leaks
- Behavior of Oconee and Keowee buried piping is managed by existing inspections



Oconee Nuclear Station License Renewal Application

**Advisory Committee on Reactor Safeguards
March 2, 2000**

Oconee License Renewal Application

Agenda

- ▶ Resolution of open and confirmatory items
- ▶ Reliance on current licensing basis and the regulatory process
- ▶ Perspective on one-time inspections
- ▶ Acceptability of inspections of buried pipe

Resolution of OIs and CIs

Open Item Number	Description
2.1.3.1-1	Scoping issue
2.2.3-1	Recirculated cooling water system should be within scope
Section	Updated discussion in this section regarding ECCS piping insulation based on Duke letter dated January 7, 2000
2.2.3.3.3.2.1	
2.2.3.4.3.2.1-1	Chilled water system should be within scope
2.2.3.4.3.2.1-2	Sealant materials for the control room pressurization and filtration system
2.2.3.4.8.2.1-1	Portions of the SSF Diesel fuel oil system, starting air system, and jacket water heat exchangers
2.2.3.6.1.2.1-1	Structural sealants – water stops, caulking, expansion joints
2.2.3.6.4.2.1-1	Turbine building and Keowee building roofs
2.2.3.7-1	Fire detection cables
2.2.3.7-2	Active equipment in storage
3.0-1	Content of FSAR Supplement
3.1.1-1	Aging effect inconsistencies in the license renewal application
3.1.3.1.7.4-1	Buried piping
3.2.3.3-1	Appendix B commitment
3.2.12-1	SSF HVAC coolers
3.2.12-2	SSF heat exchangers

Resolution of Ois and CIs

Open Item Number	Description
3.2.13-1	Service water piping corrosion program loss of material
3.2.13-2	Carbon steel inspection "indicator" of the condition of non-carbon steel components
3.2.13-3	Service water piping corrosion program relationship to Keowee
3.2.13-4	UT inspections capability to detect localized degradation
3.3.3.1-1	Tendon anchorages
3.4.3.2-1	Spray head aging effect (CASS item)
3.4.3.2-2	Void swelling (Reactor Vessel Internals)
3.4.3.3-1	Pressurizer heater bundle
3.4.3.3-2	Heater-sleeve-to-heater-bundle diaphragm plate inspection
3.4.3.3-3	Identify limiting Reactor Vessel Internals component items and incorporate into the ISI program
3.4.3.3-4	Baffle former bolts inspection (Reactor Vessel Internals)
3.4.3.3-5	For loss of fracture toughness from synergistic thermal and neutron embrittlement, perform supplemental examinations/evaluations of CASS items (Reactor Vessel Internals)
3.4.3.3-6	Vent valve bodies and retaining rings (CASS items) (Reactor Vessel Internals)
3.4.3.3-7	Evaluate CASS components to criteria in EPRI TR-106092 (RCP Casing)
3.4.3.3-8	Letdown coolers thermal fatigue
3.4.3.3-9	Reactor Vessel monitoring pipes (not part of original SER added to track B&WOG issue)
3.6.1.3.1-1	Aging effects of HVAC sub-component parts of isolators
3.6.2.3.2-1	RCP oil tank inspection plan

Resolution of OIs and CIs

Open Item Number	Description
3.8.3.1-1	Spent fuel pool temperature
3.8.3.1-2	Experience database should consider results of Oconee baseline inspection and instances of reported unusual events
3.8.3.1.9-1	Aging effects for cable trays
3.8.3.2.5-1	Secondary shield wall prestressing tendons
3.9.3-1	Insulated cables and connections (not part of original SER added due to inspection findings)
4.2.1.3-1	Provide discussion of cumulative effects of all possible cycles in the containment fatigue analysis
4.2.2.3-1	Trend lines for containment tendons
4.2.3-1	Provide information regarding the Section XI flaw evaluations for identified locations
4.2.3-2	GSI-190
4.2.5.3-1	Plan to develop data to demonstrate that the Reactor Vessel Internals will meet the deformation limit
4.2.5.3-2	Applicability of flaw growth acceptance in accordance with the ASME B&PV code, Section XI ISI requirements (Reactor Vessel Internals)

SER Confirmatory Items

Confirmatory Item Number	Description
2.2.3.6.9-1	Pipe segments that provide structural support
3.5.3.2-1	Reactor Building spray system inspection
3.6.1.3.2-1	Auxiliary service water system operating experience
3.6.3.3.2-1	Basis for Keowee oil sampling program
4.2.1.3-1	Containment pressure tests
4.2.3-1	Fatigue Management Program analyses commitments

License Renewal Principles

Reliance on Regulatory Process

- **The regulatory process is adequate to maintain safety, with the possible exception of the detrimental effects of aging**
- **The licensing basis must be maintained during the renewal term**

Perspectives on one-time inspections

- Oconee LRA contains 9 one-time inspections
- Purpose of the one-time inspections is to verify that aging effects are not occurring such that an aging management program would be required
- Staff finds approach acceptable because, if present, the aging effects are expected to be slow acting and can be resolved by the established corrective action process

Buried Piping

- Aging managed by two preventative maintenance activities
 - ▶ Condenser circulating water system internal coating inspection
 - ▶ Standby shutdown facility diesel fuel oil tank inspection
- Condenser circulating water system 11-foot diameter pipe accounts for 80 percent of the buried pipe

ACRS PRESENTATION

Revised Reactor Oversight Process Pilot Program Results and Lessons Learned



William Dean
Alan Madison
Doug Coe
Gareth Parry

March 2, 2000

AGENDA

- Introduction
- Significance Determination Process
- Future Initiatives

SDP PRINCIPAL OBJECTIVES

- **Significance Characterization**

- To characterize the significance of inspection findings arising from deficient licensee performance, where appropriate, using similar risk metrics as those used for PIs

- **Communication**

- To clearly communicate the staff's bases for its characterization of the significance of deficient licensee performance

SDP DEVELOPMENT/REFINEMENT

Plant Specific Reactor SDP

- Plant-specific worksheets are developed from information directly available to the staff (e.g., IPEs)
- Site visits to be conducted with each licensee to obtain comments and any recommended worksheet changes
- Each reactor safety SDP should be tested against the licensee's PRA for general consistency of results

SDP DEVELOPMENT/REFINEMENT

All SDPs

- A feasibility review using actual issues is performed on all SDPs prior to initial implementation

SDP ONGOING WORK

- Site-visits and consistency testing for reactor safety SDP are expected to continue through May 2000
- Containment SDP expected to be developed and ready in April 2000
- Shutdown issues screening tool expected to be developed and ready in April 2000
- External events screening tool development in progress with target date of April 2000

**PROPOSED CHANGES TO
PERFORMANCE INDICATOR
GREEN-WHITE THRESHOLDS**

	<u>OLD</u>	<u>NEW</u>
Scrams With Loss of Normal Heat Removal	>4	>2
Unplanned Power Changes	>8	>6
Safety System Unavailability:		
EAC	>3.8%	>2.5%
PWR HPSI	>2.0%	>1.5%
BWR RHR	>2.0%	>1.5%
PWR RHR	>2.0%	>1.5%
Safety System Functional Failures		
BWR	>5	>6
Occupational Exposure Control	>5 in 3yrs	>2 in 1yr
White-yellow threshold	>11 in 3yrs	>5 in 1yr
Security Equipment Performance Index (yellow threshold deleted)	>0.050	>0.080

FUTURE INITIATIVES

- Develop additional Performance Indicators (e.g., containment performance)
- Industry-wide assessment and trend evaluation
- Oversight process self-assessment
- Guidance for annual Agency Action Review Meeting and Commission briefing