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NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

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RENEWAL

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

FEBRUARY 24, 2000

The contents of this transcript of the proceeding of the United States Nuclear Regulatory Commission Advisory Committee on Reactor Safeguards, taken on February 24, 2000, as reported herein, is a record of the discussions recorded at the meeting held on the above date.

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 MTG: PLANT LICENSE RENEWAL
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9 Clemson University
10 Madren Conference Center
11 Room III & IV
12 Madren Center Drive
13 Clemson, South Carolina
14 Thursday, February 24, 2000

15 The above-entitled meeting commenced, pursuant to
16 notice, at 8:00 a.m.

17 MEMBERS PRESENT:

18 MARIO BONACA, Chairman, ACRS
19 ROBERT SEALE, Vice-Chairman, ACRS
20 THOMAS KRESS, Member, ACRS
21 DANA POWERS, Member, ACRS
22 WILLIAM SHACK, Member, ACRS
23 JACK SIEBER, Member, ACRS
24 ROBERT UHRIG, Member, ACRS
25

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P R O C E E D I N G S

(8:00 a.m.)

CHAIRMAN BONACA: This is a meeting of the ACRS Plant License Renewal Subcommittee. I am Mario Bonaca, Chairman of the Subcommittee. The other ACRS members in attendance are the Vice Chairman of the Subcommittee, Robert Seale, Thomas Kress, Dana Powers, William Shack, Jack Sieber, and Robert Uhrig.

The purpose of the meeting is to meet with the representatives of the NRC staff and the Duke Energy Corporation to discuss the staff's resolution of the open and confirmatory items identified in the Safety Evaluation Report related to the license renewal of Oconee Nuclear Station, Units 1, 2 and 3, and related license renewal activities. Our Subcommittee will gather information, analyze relevant issues and facts, and formulate proposed positions and actions as appropriate for deliberation by the full Committee.

Noel Dudley is the Cognizant ACRS Staff Engineer for this meeting.

The rules for participation in today's meeting have been announced as part of the notice of this meeting previously published in the Federal Register on January 13, 2000.

A transcript of the meeting is being kept and will

1 be made available as stated in the Federal Register Notice.
2 It is requested that the speakers first identify themselves
3 and speak with sufficient clarity and volume so that they
4 are readily heard.

5 We have received no written comments or requests
6 for time to make oral statements from members of the public.

7 Yesterday, the Subcommittee toured Oconee Nuclear
8 Station and meet with representatives of the Duke Energy
9 Corporation to review the details of how Duke conducted the
10 license renewal scoping and aging management review
11 processes.

12 Before we proceed, Jack Sieber of the Committee
13 needs to make a statement.

14 Mr. Sieber: Thank you, Mr. Chairman. I would
15 like to place on the record the fact that under Federal
16 Ethics Laws I am not eligible to vote on matters effecting
17 Duke Energy Corporation because I am a stockholder of Duke
18 Capital Corporation, and, therefore, my non-voting should be
19 construed in that light. Thank you.

20 CHAIRMAN BONACA: Thank you. We will proceed now
21 with the meeting and

22 I call upon the Duke staff to begin. Good
23 morning.

24 MR. GILL: Good morning. Thank you, Dr. Bonaca.
25 My name is Bob Gill. I am on the Oconee License Renewal

1 Team. I'm here to start our presentation. And on behalf of
2 Duke Energy, the Team, and, of course, Oconee Nuclear
3 Station, we welcome you to the upstate South Carolina area.
4 Hope you've enjoyed your visit, your short visit although it
5 may be.

6 We have several presenters today to go over topics
7 of interest that have been identified. Before I do that,
8 let me go through just a little bit of a background before
9 we get into the first topics. I'm going to cover briefly
10 the project status, where we are. This is a very important
11 meeting, because it is leading up to the recommendation by
12 the staff in the next couple of weeks. There were three
13 open items that the Committee decided they would like to
14 review in depth; the resolution of scoping methodology,
15 electrical insulated cables and connectors, aging management
16 program, and vessel internals. We have presentation
17 prepared on each one of those.

18 Briefly, on the status, the current status as we
19 understand it is that the Recommendation Letter to the
20 Commission will be sent by the staff by April 14. There are
21 a number of milestones that have to be completed before
22 then, many of which have already been done. The Facility
23 Operating License, the new draft, has been provided us for
24 review. We have a meeting scheduled on March 19th with the
25 staff to go over that.

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1 There were no technical specifications or changes
2 identified.

3 The Final Safety Evaluation Report, which we have
4 copies on the table, have been published by the staff. We
5 were very welcome on that. A lot of good work has gone on
6 both sides there.

7 The UFSAR Supplement, a draft, was provided to the
8 staff and the staff is reviewing that. We intend to
9 formally submit a revised UFSAR Supplement by the end of
10 March so the staff can have that as part of the package. We
11 are expecting a Region II Recommendation Letter by the end
12 of March. There is a site inspection scheduled for next
13 week, with a Public Exit Meeting the end of next week
14 announced.

15 Final Supplemental Environmental Impact Statement
16 was received in December. That closed out all the
17 environmental reviews associated with renewal of the license
18 for Oconee. We are expecting your recommendation Letter in
19 a couple of weeks, after the full committee has a chance to
20 review all the issues.

21 And for the final piece was the Indemnity
22 Agreement, which was required by the regulations to be
23 looked at. We did not identify any changes. I believe the
24 staff has concurred in that.

25 So, those eight pieces are the total package that

1 we needed to renew the license.

2 The purpose of this morning's discussion is for us
3 to provide additional information to the members of the
4 committee on the resolution of three open items, and the
5 insights that we used to do that. We will follow the
6 handout that is in here.

7 The first item that will be discussed is the
8 Scoping Methodology, with Rounette Nader.

9 Second, will be Paul Colaianni talking about the
10 Electrical Aging Management Program on cables and
11 connectors.

12 And, finally, Jeff Gilreath from our corporate
13 office staff. And you see a couple of models here and
14 diagrams of the vessel internals. That will be our last
15 presentation, and we will be able to answer any questions
16 the staff has on that.

17 Are there any questions at this point in time on
18 what we are covering? I turn it over now to Rounette Nader,
19 who will go over the Scoping Methodology validation that we
20 did late last year.

21 MS. NADER: Thank you, Bob. I'm Rounette Nader
22 with Duke Energy. I'll be discussing the Scoping open item.
23 On slide number seven, we have the issued defined and the
24 resolution, all here together at the beginning. But the
25 issue really evolved into from the scoping open item was, is

1 the set of events that was considered by Oconee license
2 renewal scoping methodology sufficient for scoping.

3 The issue was resolved by case study. Ten events
4 identified by the NRC. Duke researched the licensing basis
5 of the ten events, and the end result was that the scoping
6 methodology had identified all the appropriate systems,
7 structures and components for license renewal.

8 On slide number eight, really the next three
9 slides, eight, nine and ten, are a chronology of some of the
10 things that occurred between Duke and NRC on this issue.
11 I'm not going to go through each of these. It is really
12 more just to show the rigor of what really went into this
13 issue. You can see that Duke submitted the license renewal
14 application in July of 1998. And in October of '98 the NRC
15 staff, several members traveled to Charlotte to look at the
16 internal documentation related to scoping.

17 Several meetings occurred. The request for
18 additional information was issued in December. Several
19 meetings occurred the first half of '99. On slide number
20 nine you will see the second half of '99 were more meetings.
21 The SER open item was issued.

22 On slide number ten, on October 28th of 1999,
23 which was a year and a day after our first meeting, Duke and
24 NRC had a meeting to discuss resolution of the issue.

25 Duke submitted the response in November and the

1 SER that was issued just this month closed the open item.
2 To really understand the technical basis behind the issue,
3 on slide eleven begins a presentation of, really of the
4 Oconee scoping methodology for license renewal. The
5 methodology for all three disciplines combined, we have
6 boiled down into seven steps. The first four steps were the
7 mechanical steps for mechanical scoping.

8 So the first step was to identify functional flow
9 paths, mechanical functional flow paths required to mitigate
10 design basis events for Oconee.

11 The second step was to add pressure boundary to
12 these flow paths. Passive pressure boundaries required
13 before you could impact the flow paths.

14 The third was to identify physical interference
15 commonly known as two over one, any piping whose failure
16 could interfere with a safety related or a central system.
17 On slide twelve, the fourth step, was to capture any other
18 safety related or seismic equipment at the plant that had
19 not already been identified. Because of Oconee's design
20 there were some incidences where there were safety related
21 piping that didn't get identified in the first three steps.
22 They got identified in step number four.

23 From a structural standpoint starting with item
24 number five, class one structures meet the 54.4(a)(1)
25 criteria. Class two structures meet the (a)(2) criteria.

1 Those were scoped by looking in the UFSAR for those
2 definitions.

3 Step number six was electrical in nature. You
4 heard about the spaces approach. All electrical components
5 were initially assumed to be within scope, and then the
6 screening staff screened out active equipment.

7 In step seven was to meet the 54.4(a)(3) criteria,
8 which was to look at the licensing basis of the five
9 regulated events that are in (a)(3) and include those
10 systems, structures and components within scope.

11 So upon completion of these seven steps, the
12 scoping for license renewal was complete for mechanical,
13 structural and electrical.

14 On slide thirteen we did a graphical
15 representation of the methodology and really the results.
16 You can see on the pie chart the structural pie piece, the
17 electrical pie piece, the 54.4(a)(3), the regulated events
18 pie piece. On the top piece of the pie is the mechanical
19 methodology. It is broken into the four steps that I just
20 mentioned.

21 The first step, the input into the first step, is
22 really the issue of the open item. The first step was
23 accomplished by identifying the functional flow paths
24 required for design basis events. What are those events,
25 that's how the issue got identified. So with design basis

1 events, the passive pressure boundary, the seismic two over
2 one, and the other safety related in seismic. So we felt
3 like the focus of the issue was really -- is there anything,
4 any little bump in this pie that should be added. The NRC
5 had concern that there were other events that Oconee should
6 have considered when scoping for license renewal.

7 So what did Duke consider as a design basis
8 events. Design basis events are as the term that is used in
9 54 for scoping. Oconee's UFSAR, Chapter 15, is the accident
10 analysis chapter for Oconee. The first sentence, the
11 introductory sentence for that chapter, is the following:
12 "This section details the expected response of the plant to
13 which the spectrum of transients and accidents which
14 constitute the design basis events." So, historically, this
15 is

16 the -- the Chapter 15 accident analyses are the
17 events that Oconee has considered the design basis events.

18 Modern day regulations get written very similar to
19 the way 54.4 is written. When applying these regulations to
20 Oconee, it is important to recognize that Oconee's design
21 really preceded the regulation that defines these on-basis
22 events today in 50.49. We had our definition that was on
23 the previous slide, on fourteen. We did institute a project
24 in the early 90's to really confirm since all the
25 regulations that were coming out really used this new type

1 of methodology and new approach. To confirm Oconee's
2 licensing basis and design, and they really confirmed that
3 the UFSAR Chapter 15 events are what constituted the
4 licensing basis for Oconee as the design basis events.

5 In addition, this project said, the end result of
6 the project said, you know, really since original licensing
7 there have been some other events that have come up through
8 licensing that are really important. When you are scoping
9 these regulated programs you should probably consider these
10 additional events. A license renewal was an issue that did
11 that. We call them scoping events. It goes beyond the
12 Chapter 15 licensing basis, design basis events.

13 On slide sixteen, the definition of the scoping
14 events that was used by Oconee for license renewal scoping.
15 For the design basis events in Chapter 15. Natural
16 Phenomena Criteria, which are in Chapter 3 of the Oconee
17 UFSAR. The Post-TMI Emergency Feedwater Designs, the
18 scenarios associated with that. And the Turbine Building
19 Flood, which is mitigated by the Standby Shutdown Facility.
20 You saw that in your tour yesterday.

21 So the Chapter 15 events, plus these other three
22 criteria, were the scoping events set that was used by
23 Oconee scoping.

24 So throughout the year as Duke and NRC had our
25 meetings and our correspondence on the issue, we finally

1 came down to Resolution, the NRC Perspective, as you see on
2 slide seventeen. It is the staff believe that more events
3 should be considered, and should have been reviewed in order
4 the insure the functions identified in 54.4(a)(1).

5 So the resolution was for Duke to conduct a case
6 study of ten additional events that were identified by the
7 staff and given to Duke, and to research the current
8 licensing basis and these five documents: Commission
9 regulations, license conditions, Commission orders, the
10 UFSAR, and exemptions.

11 On slide eighteen, the purpose of the case study
12 was to really validate the scoping methodology that had been
13 performed by Oconee, the seven steps that we just spoke of.
14 That those seven steps as executed identify all the SSCs
15 required to be within the scope of license renewal for 54.4.

16 On slide nineteen you can see the results of the
17 case study. The assessment performed by Duke revealed that
18 the current licensing basis associated with those ten events
19 did not identify any additional systems, structures, or
20 components that met the license renewal scope that met the
21 criteria of 54.4.

22 The final SER that was issued earlier this month
23 agreed with that, the Duke assessment. That no additional
24 SSCs needed to added to the scope of license renewal.

25 So slide twenty is the conclusion from the case

1 study. The Oconee License Renewal Scoping Methodology is
2 described in the Application in that you saw in the seven
3 steps that we just described, identified all systems,
4 structures and components relied upon to remain functional,
5 to insure the functions identified in 10 CFR 54.4.

6 The case study provided the validation for Duke
7 and the NRC, that the methodology that was employed by
8 Oconee, by Duke, was indeed sufficient. And the NRC could
9 use that validation in making their finding that the scoping
10 methodology was sufficient and that the results were
11 sufficient.

12 The final SER, as I mentioned before, did resolve
13 the issue. It closed the open item related to the scoping
14 issue. It does talk about the validation that was done, the
15 case study that was done, and that the NRC gave reasonable
16 assurance that the set of events that were used in the
17 scoping methodology were sufficient to get all the important
18 SSCs in the plan, and all the SSCs that met the license
19 renewal scoping criteria 54.4.

20 We feel good about our scoping methodology. We've
21 felt good about our scoping methodology for awhile. Our
22 project that was instituted at the beginning of the early
23 nineties, like I mentioned before, did a validation of
24 Oconee's licensing basis, and design basis. We felt good
25 because we felt like we were consistent with our current

1 licensing basis. You saw the statement of the Chapter 15 of
2 UFSAR. We felt like our scoping process was really applied
3 in accordance with the rule. We read the rule, we read the
4 SSCs. We felt like the methodology we employed was a good
5 one.

6 We were also consistent with other regulations,
7 regulations that used the same type of wording, such as
8 maintenance rule, in-service testing, scope, motor operated
9 valve testing scope. Other regulative programs that have
10 been instituted in the last decade or so that used the same
11 kind of words, the license renewal scoping methodology was
12 very consistent with those. And traditionally when you look
13 at the plant, you look at Oconee, you pull out the drawings
14 to see what is in license renewal scope, we feel like we
15 really captured all the important systems, structures and
16 components. Just a gut feel. All the SSCs that we
17 traditionally view as important to a plant, we really feel
18 like we've got them.

19 Questions?

20 CHAIRMAN BONACA: One of the main events that you
21 reviewed for the items, and you yesterday described to me
22 that was a study that was done -- could you tell me the
23 dates when it was done? At least to the extent that the
24 review that that accident evolved?

25 MS. NADER: That's true. One of the events that

1 was researched in the case study was a high energy line
2 break event that Oconee had done a report on in 1973. It
3 was based on a Jim Bouso, Mr. Jim Bouso letter that was
4 issued really after Oconee Unit One was licensed, but before
5 Oconee Units Two and Three were licensed. The report that
6 was conducted looked at the susceptible locations of high
7 energy lines, where they might break, and what sort of
8 safety related components it may impact.

9 There were some resultant actions that came out of
10 the High Energy Line Break Report. There were several
11 modifications that had to be done to the plant in order to
12 insure that the plant could be safely shut down in the event
13 of a high energy line break as such.

14 One of the ten events was the high energy line
15 break. We did review the report. We had Duke and the NRC,
16 we had some guidelines on what sort of things should be
17 reviewed. The UFSAR talks about the high energy line
18 breaks. The licensing basis associated with the high energy
19 line breaks were the -- there was actually a license
20 condition on Unit One to get the modifications performed.
21 Units Two and Three, we did the modifications before they
22 started up.

23 So we looked at the licensing basis associated
24 with high energy line break and determined that the systems,
25 structures and components that were within the licensing

1 basis for that event were in the scope of license renewal.

2 CHAIRMAN BONACA: I guess the question I have is
3 from the perspective of ACRS and the review you performed.
4 There should have been a scope, a review of that particular
5 event, right? Because, I mean, it is part of your licensing
6 basis and I was curious to know why in your going through
7 the first six events that we went through did not include
8 that one. I'm sure that one already was reflected in your
9 piping systems. You showed us those diagrams. I'm just
10 trying to understand for future applications the fact that
11 why you would not have included that specific event as one
12 that you used originally.

13 MS. NADER: That event is discussed in the UFSAR.
14 It is in Chapter 9, I believe, of the UFSAR. It is not one
15 of the Chapter 15 accidents in the UFSAR. It is not
16 traditionally considered a design basis event for Oconee.
17 It was used as part of the design for Oconee, a design
18 criteria to insure that you don't route high energy lines
19 over safety related switch gears. But as far as having an
20 accident analysis, you know, such as a safety analysis on
21 this event, we traditionally don't treat this event as a
22 design basis event that is included in scoping. Like I say,
23 if we modified the plant correctly the way we were supposed
24 to according to the license condition, and we perform our
25 modifications like we should, and we don't route the high

1 energy lines over safety related piping, then there is
2 really, there is really ---

3 CHAIRMAN BONACA: Certainly. But shouldn't
4 beginning the scope that you cover to include more than
5 Chapter 15 events. In fact, on the list of items in which
6 you gave us, I believe, they would be on that.

7 MS. NADER: That's true.

8 CHAIRMAN BONACA: I'm not questioning the scope of
9 which you have

10 covered today. I'm only asking questions about
11 these events in my judgment should have been part of the
12 original review. And it would fit within the categorization
13 that you've described here which say Chapter 15 events plus,
14 TMI, and I can't find it now.

15 MS. NADER: It is on slide sixteen. There were
16 several reasons for identifying the plus; the Natural
17 Phenomenon, the Post-TMI Emergency Feedwater scenarios, and
18 the Turbine Building Flood. Some of them were based on
19 risks. The biggest thing I think that really went into the
20 plus events, if you will, is the fact that they bring in
21 important parts of the plant. If you exclude the plus, for
22 example, you will not have the standby shutdown facility
23 within scope. You saw it yesterday. It is a pretty
24 impressive facility. It is safety related. But it would
25 not come in the scope for a Chapter 15 event because it was

1 all in post-licensing. It was not an event that was added
2 to Chapter 15.

3 CHAIRMAN BONACA: And, again, on slide number
4 sixteen you have expanded the basis from Chapter 15 with
5 other things. You showed us diagrams yesterday, and I'm
6 sure that the high energy line break locations for physical
7 interactions I think have been identified in some of the
8 diagrams already.

9 MS. NADER: That's right.

10 CHAIRMAN BONACA: Okay. For the purpose of to get
11 license renewal in general, that to me is an understanding
12 of where the staff was going and I think that it was good
13 that this was done as part of that.

14 MS. NADER: And I think that's the thought process
15 that went into these, the plus events, was that if you
16 really did scope using Chapter 15 and these plus events, you
17 have bound things like high energy line break. That's what
18 we found out from the validation and from the case study.

19 Any other questions? Comments?

20 CHAIRMAN BONACA: None, thank you.

21 MS. NADER: Okay.

22 MR. GILL: Next up we will have Paul Colaianni,
23 who is our electrical lead engineer on the license renewal
24 project. He will discuss in detail the Insulated Cable
25 Aging Management Program that we've added, that was not part

1 of the original submittal. That was added to the program
2 late last year.

3 MR. COLAIANNI: Hello.

4 CHAIRMAN BONACA: Good morning.

5 MR. COLAIANNI: All right, we will start out,
6 basically this open item was opened up after the original
7 review of plants UFSAR came out. It came out of the on-site
8 inspections, and basically a review offered experience,
9 showed that, indicated that something was needed. The items
10 basically fell into two categories that are generated via
11 the program that came out of this. And, basically, to
12 resolve the item, basically Duke committed to initiate a
13 cable aging management program. I will go through the
14 details here.

15 We pretty much included all the verbiage in these,
16 we tried to make them readable so you'd have all the
17 details. So, we will take the two separately then,
18 thermal/radiation aging versus moisture aging. So, this is
19 the thermal/radiation aging.

20 Basically, what was found was insulated cables in
21 a small number of localized areas in containment were
22 identified in station problem reports as exhibiting
23 accelerated aging due to their proximity to this high
24 equipment.

25 Corrective actions, these, of course, showed up in

1 the problem investigation reports. Corrective actions at
2 the time tested the cables and they were all functional. So
3 that confirmed that. Future surveillance was also put into
4 corrective actions. Modifications to eliminate the adverse
5 environments were to be evaluated. That's the corrective
6 actions that came out of it. Yes?

7 DR. SEALE: Have you got any indication based on
8 the initial examinations where things were still functional,
9 that down the road you might expect a deterioration in
10 performance and that was the reason for the future
11 surveillance item that is in that bullet?

12 MR. COLAIANNI:

13 Yeah. There were not -- if the cables look in a
14 condition that they seem to accelerate at that same rate,
15 you might have a problem.

16 DR. SEALE: Okay.

17 MR. COLAIANNI: Yeah, that was the reason for
18 continuously monitoring of the area. The evaluation of the
19 modification, I mean, the ideal situation where you can
20 actually eliminate it. One case was where they had routed
21 some cables over a large feedwater line. The ideal would be
22 to fix it, shield it, so that you no longer have that design
23 feature in that area. So that's the thought process behind
24 that.

25 DR. SHACK: How were the problems identified?

1 That's basically visual inspection, saw degraded cables, or
2 functional problems?

3 MR. COLAIANNI: No. Visual inspections. Some of
4 them were actual dedicated walkdowns, but these same areas
5 were also found just by maintenance people walking around
6 doing their jobs and they would notice something and report
7 it back. Then an engineer would come out and evaluate it.
8 But it turned out that many of these got identified more
9 than once, so you had more than one PIP on the same area
10 simply because the area kept being noticed by maintenance
11 people. But walkdown inspections, just visual indications
12 were what was noted.

13 When these are identified in the early stages of
14 license renewal review, this is like 1996 time frame. This
15 is the walkdowns I told you about yesterday, that I went
16 over. A lot of these were initially noted in PIPS at that
17 time. The problems were judged to be design installation
18 problems and not relevant to license renewal. That may
19 seem, on hindsight it kind of looks strange to say that, but
20 at the time what we were thinking was, you know, we were
21 trying to draw a distinct line between design problems, or
22 maintenance problems, versus actual aging problems. So that
23 was the judgment that was reflected in the original
24 application, that these were design issues that should be
25 dealt with more in the modification area to alleviate the

1 problem rather than an aging issue that should be part of
2 license renewal. So, that is kind of what got reflected in
3 the original application.

4 CHAIRMAN BONACA: But you may have a design
5 feature, not from a cable but from the environment that is
6 causing the aging problem.

7 MR. COLAIANNI: Right.

8 CHAIRMAN BONACA: So the environment is part of
9 the license renewal, but not from the aging then because you
10 can just make the same application, eliminating that
11 environment.

12 MR. COLAIANNI: Right.

13 CHAIRMAN BONACA: So, you are addressing that?

14 MR. COLAIANNI: Yes. Yes. And as you will see in
15 the next slide the progression that went on, basically, in
16 what we realize now is that if you have a design
17 installation problem that you don't fix, then basically then
18 you've got an aging problem that is part of license renewal.
19 But if they went ahead and fixed it so to alleviate the
20 problem and it goes away, then it is not an aging problem.
21 So it is kind of a progression of thinking through the
22 process.

23 So, as I was just describing, basically in 1999
24 now that we did the on-site inspections, the problem reports
25 were identified by the staff. The problems the staff

1 identified as indications that aging management was needed,
2 which was a good call because the areas had not been
3 modified to alleviate the problem. So that is basically
4 what this explains here. So we agreed at that point since
5 the areas had not been modified to alleviate the problem
6 then aging management was needed. And, basically, these
7 sort of lessons, I call as lessons learned. I tried to, you
8 know, the incident I told you about yesterday, give them
9 this type of lesson meaning, you know, if you discover in
10 walkdown something that you can label as a design and
11 replace the problem. If you don't ever fix it, then you
12 better include it in the license renewal program, because
13 then it becomes an aging problem. If you are going to fix
14 it, take care of it then and you won't have to worry about
15 it. So, that is one of those lessons to learn going through
16 this process the first time. It is always a challenge to
17 label something.

18 CHAIRMAN BONACA: Say that you didn't go through
19 license renewal till you find some cable like that, what
20 would you do? I mean, you would just have the decision to
21 either remove the cause of the problem by corrective action,
22 or just simply monitor. That depends on if they have built
23 it in the system, right?

24 MR. COLAIANNI: Right. Yeah, and it may depend on
25 a particular situation. But, the continued surveillance of

1 that particular area would go on and either we'd modify it
2 or continue to be surveilled down the road. License renewal
3 just more or less made that process a commitment to make
4 sure that that actually does get done as part of the
5 program.

6 CHAIRMAN BONACA: But it is not different from
7 what you normally would do?

8 MR. COLAIANNI: No.

9 CHAIRMAN BONACA: This is just establishing some
10 specific commitment that you would do it?

11 MR. COLAIANNI: Right.

12 CHAIRMAN BONACA: An alternative to just simply
13 moving the environment that is caused by the design problem?

14 MR. COLAIANNI: Right. Now even in this stage,
15 even though those areas will be wrapped into the program, if
16 they actually do modify them in the future to alleviate the
17 situation, the adverse environment, then basically they can
18 be brought back out of the program. Then there would be no
19 need to have them in there.

20 CHAIRMAN BONACA: Yesterday you showed us some
21 very aggressive inspection on your part, which I think
22 should be commended. You wrote down a lot of systems, and
23 you showed snapshots of areas where there were indications
24 of challenging the equipment. Is this just a one-time
25 initiative, or is it going to be part of this aging

1 management program, which you are going to have walkdowns
2 with some frequency?

3 MR. COLAIANNI: The inspections that are
4 envisioned, even though we found in specific areas,
5 basically around the steam generators and pressurizers
6 revealed some hot pipes we found specific areas. The
7 inspections themselves are going to be enlarged to basically
8 say, you know, basically we are going to look around all
9 areas that the steam generators where you have cables to see
10 if you have these things. In a three or four foot proximity
11 all around the pressurizer is where you might have cables.
12 Those are the areas that are most prone to where these
13 problems would pop up. So it should make sense to just
14 include the whole area around the steam generator and
15 pressurizer in the inspection program.

16 CHAIRMAN BONACA: So you really haven't
17 identified, or you will in
18 the aging management program of cables with
19 specification location which are regulated by the aging
20 program?

21 MR. COLAIANNI: Right. And one of the elements
22 you will see in there, because those fall close to hot
23 equipment basically, you've got that similar adverse
24 environment from the cables and those similarities. So that
25 would also be included.

1 CHAIRMAN BONACA: Okay.

2 MR. COLAIANNI: I've already covered this. Next
3 slide.

4 Mr. Sieber: While you are doing that, there are
5 some cables, power cables and control cables that you can't
6 visually inspect. Those are ones that run in duct lines or
7 conduits. What steps are you taking with those types of
8 cables to insure that their condition is satisfactory?

9 MR. COLAIANNI: In our Reactor Building we have
10 very few cables in conduit, basically because we have the
11 armored construction cables. So that is really not a
12 problem. In most places we have very limited use of conduit
13 for areas that would just be subject to heat degradation.
14 Now, the moisture degradation issue is covered, and I'll be
15 covering that in some later slides for medium voltage cables
16 exposed to moisture.

17 Mr. Sieber: All right.

18 MR. COLAIANNI: So what we came out with, this is
19 the part of the program specific to the Thermal and Aging,
20 Radiation Aging Effects. Basically, all in-scope cables
21 installed in adverse, localized environments will be
22 inspected. And those adverse localized environments
23 basically, since they sort of did it on a spacing approach,
24 basically we are going to be inspecting areas looking at
25 cables and areas as opposed to specific identified cables.

1 And, again, because of the way the rule is set up,
2 these do not include the acute program cables. They are
3 already in an adequate program. The staff found that to be
4 adequate for managing the aging of those cables. They've
5 already been through a lot of pre-testing for their
6 environments. So, this program itself does not explicitly
7 include EQ cables, although in the inspections you are not
8 really determining whether something is in or out of EQ, but
9 this is more of a programmatic statement.

10 Accessible cables in these areas will be visually
11 inspected every ten years. Basically what you are going to
12 be looking for is cable surface anomalies to be used as an
13 indication that something is going on with the cable. You
14 obviously can't see the actual installation, that
15 installation, which is the thing that really matters. But
16 you are looking for surface indications that something is
17 going on with the cable. So, these are the types of things
18 you would look for in addition to other things. We've got a
19 guide that I can show you that gives a lot of information on
20 what kind of things to look for and where to look for them.

21 Unacceptable indications found during the
22 inspections will be investigated further by engineering.
23 So, basically where something is found either by a
24 maintenance person, going through and identifying something,
25 or an engineering problem itself, finding something, if it

1 looks, and depending on how it looks, further investigation
2 would be done and it could include testing and any sort of
3 corrective actions that seem appropriate.

4 MR. UHRIG: In the armored cables are you looking
5 for dents

6 in the armor? What kind are you looking for?

7 MR. COLAIANNI: Actually, in a lot of cases there
8 are some cables in the Reactor Building that just have the
9 armor on the outside. But there are quite a lot of cables.
10 In most cases you are more concerned with control of the
11 cables. Those do have jackets that you can see, or they
12 have a braided armor and you can actually see the jacket
13 underneath the braided armor, or you can see deterioration
14 of the braid. But you can actually see it. There are those
15 pictures I showed you yesterday. You can actually see there
16 is some deterioration that is going on. Although we do have
17 armored cable, it might seem kind of strange to look for
18 surface dents, but there are indications that you can see.
19 This was found in the PIPS. Basically, a lot of things can
20 be seen. A lot of things have been seen as time goes on.

21 So now we will move onto the Moisture,
22 Medium-Voltage Cable Moisture Aging Effect part of the
23 program. The history is basically on the outside inspection
24 reviews. Areas of particular concern to inspectors were
25 water collection and cable trenches and potential

1 degradation of direct-buried cables. To answer those
2 concerns during the inspection, basically Oconee cables
3 installed in trenches are designed for a rain and drain type
4 exposure. The inspection reports for the direct buried
5 cable tests, as also documented in the inspection report, do
6 not show, do not indicate ongoing degradation. So, we feel
7 good about at least the rate of whatever mechanism involved
8 with those cables.

9 We did have one LER of a medium voltage cable back
10 in 1980, where the cable failed. The documented root cause
11 of that was their moisture intrusion due to improper
12 installation, due to damage of the jacket during
13 installation, or improper installation where water was
14 allowed to intrude into the end of the cable. But those
15 were the documented root causes in the LER itself. But
16 that's the only instance that I'm aware of of medium-voltage
17 cable failures with the conduit at Oconee.

18 CHAIRMAN BONACA: How was this failure identified?

19 MR. COLAIANNI: It was identified as part of
20 testing of the motor. It might have been a mega test, but
21 I'm not positive, but they were testing the service and
22 found an indication and narrowed it down to the cable
23 itself.

24 CHAIRMAN BONACA: So there was nothing to -- it
25 was just part of a test?

1 MR. COLAIANNI: Right. So based on the site
2 inspection, the staffing concluded that aging effects for
3 medium-voltage cables exposed to moisture were applicable to
4 Oconee and that aging management was needed.

5 So here we have the program elements pertaining
6 particularly to this aging effect. Basically the program
7 includes an inaccessible in-scope medium-voltage cables
8 installed in adverse localized environments in conduits and
9 direct-buried. Water collection in manholes will be
10 monitored to prevent cables from being exposed to
11 significant moisture as a preventive action. Inaccessible
12 medium-voltage cables exposed to significant moisture and
13 voltage will be tested at least every ten years. Now,
14 basically when we talk about significant -- I use the term
15 significant moisture and significant voltage. Those are
16 defined as part of the program. It depends on the
17 particulars of the cable itself as to what to submit. We do
18 have the framework of definition. If you are not real sure
19 of what your cable is capable of withstanding when we talk
20 environments, we have sort of a threshold value in there.
21 But a lot of it depends on how the cable is designed, what
22 environment it is designed for. You could have a submarine
23 cable which is designed for a hundred percent exposure, a
24 hundred percent voltage all the time. So that does depend
25 on the cable itself.

1 MR. UHRIG: What kind of testing are you talking
2 about there, measuring the resistance, the pulse
3 transmission?

4 MR. COLAIANNI: Right now, and because the first
5 testing under this program will not be done for another
6 decade, didn't specify what type of test. Basically, before
7 the test is performed, the cable engineer with the help of
8 our NGO cable engineer, would determine what is the best
9 type of test performed and to give him the best information
10 on the individual cable. But that really won't need to be
11 determined, won't be determined till another decade before
12 the test. And hopefully, you know, mainly because there
13 could be new test arise between now an then. A lot of the
14 test that we will replace now, that may not look good now,
15 maybe customized down the road. So we didn't want to
16 specify and lock into any particular type. But it would be
17 something that would give the cable engineers a good
18 confidence about the condition of the cables.

19 CHAIRMAN BONACA: But you plan to do the testing?
20 You've committed
21 to some testing by what?

22 MR. COLAIANNI: The first test would occur
23 sometime before the end of the Unit One initial period of
24 operation.

25 CHAIRMAN BONACA: And you would have a bona fide

1 program at the time, of course problems can change as you
2 learn more, or something different.

3 MR. COLAIANNI: That's correct. The program would
4 be fully in place before the first test would be performed.
5 So this is the reason we are talking prior to each test, the
6 specific type of test performed along with test acceptance
7 criteria will be determined.

8 The criteria will depend on the type of test, and
9 what are the particulars at the time, and the particular
10 type of cable. The cables not meeting the test acceptance
11 criteria will be investigated further by engineering, be it
12 testing, be it replacement, whatever seems to be corrective
13 action.

14 All right, so those are the particular aspects to
15 each of those types. Now, there are aspects of the program
16 that deal with both thermal aging and moisture. These are
17 basically that a determination we made as to whether an
18 identified unacceptable condition or situation is applicable
19 to other accessible or inaccessible cables. So in the case
20 of thermal or radiation, of course you can't see cables in
21 the middle of a bundle. So if you see some indications on
22 the surface of the ones you can see, you know, an evaluation
23 would be determined whether is that a condition applicable
24 to other cables that I can't see. And the same thing for
25 the moisture. They find some cables and they do a test and

1 they find an unacceptable condition, an evaluation would be
2 done. Is this occurring on other units with the same
3 configurations, but that would be applied. The initial
4 inspections or tests would be completed by February 6, 2013.
5 That is the end of the initial four year period for Unit
6 One.

7 And to use as a guidance, there is a new document
8 posed by EPRI now that gives good walkdown guidance. Here
9 are some of the kind things we look for, here is a good way
10 to organize your activities related to these things. And it
11 will be used as guidance to the process of completing the
12 program.

13 I think that is it. Any questions?

14 With this we feel confident that we will be able
15 to manage the problems that were seen by the staff in that
16 whole process of license renewal.

17 CHAIRMAN BONACA: Thank you. Any questions?

18 Thank you.

19 MR. GILL: Jeff Gilreath will come up now and
20 he'll talk about Vessel Internals. We have a display over
21 to the side.

22 Do we want to bring that up before here so you can
23 use it here, Jeff?

24 MR. GILREATH: People can look at it there.

25 MR. GILL: Okay. So on the break perhaps we will

1 talk more, if that is all right, Dr. Bonaca. We do have
2 some backup slides that will give the details on each
3 specific location. Jeff has been involved for several years
4 in industry efforts of vessels internals. He is well-versed
5 in the current activities. They are ongoing, not only at
6 Duke but also in Anderson.

7 MR. GILREATH: As Bob said, my name is Jeff
8 Gilreath. I work in Materials, Mileage and Piping group
9 for nuclear engineering section.

10 The purpose of the presentation today is to review
11 how Duke Power addressed the open items concerning reactor
12 vessel internals. Directly, there were six open items that
13 we needed to address on certain reactor vessel internals.
14 One had to do with potential void swelling, potential
15 changes. The second had to do with potential cracking due
16 to radiated assisted stress corrosion cracking, radiation
17 embrittlement. And basically the 3 and 4 materials, reactor
18 vessel internals, the third had to do with cracking of the
19 baffle former bolts. So there has been some cracking
20 identified in industry on back about baffle former bolts to
21 date and the potential effect that could occur in the
22 license renewal period. The fourth had to do with the
23 embrittlement of cast austenitic stainless steel. The
24 concern there was that we knew that there was thermal
25 embrittlement, and we know that there is potential for

1 radiation embrittlement. But is there any synergistic-type
2 effect and do we have the material properties to evaluate
3 that.

4 The fifth had to do with the thermal embrittlement
5 of the vent value. And that, too, is just that a vent value
6 has a castaustenitic stainless steel body and it has a
7 retained ream that is a martensitic stainless steel.

8 And then the last had to do with the reduction of
9 fractured toughness of the internals to the radiation
10 embrittlement. Duke resolved these issues in the end by
11 committing to an inspection plan to inspect what are the
12 effects of these particular mechanisms, and also to
13 participate in industry and research and to report our
14 program at it matures and evolves over the next few years.
15 On slide 34, just to point out different components of the
16 internals. In the internals, and there is a picture over
17 here, and even our model, you can look at that later, it is
18 really made of two sections. It has a plenum area that is
19 removed when we defuel every outage. In the plenum area
20 assembly there is a sixty-nine control rod guide tube
21 assembly. Within these control rod guide tube assemblies,
22 there are actual spacers, ten spacers in each assembly as of
23 castaustenitic stainless steel. So, therefore, we were
24 asked to address those components.

25 Also, there is your core support assembly. Your

1 core support assembly is actually made up of three
2 components that are bolted together. You have your support
3 shield. In your support shield area you have some vent
4 values. Well, we just mentioned vent values. And also the,
5 on unit three there are outlet nozzles that are
6 castaustenitic stainless steel.

7 Then your core barrel assembly. This is really
8 where most of our focus is, because in the core barrel
9 assembly there is high levels of radiation. There are the
10 baffle bolts that we've been addressing. There are also the
11 baffle plates, former plates, your core barrel itself. So
12 there is a lot of research going on right now evaluating
13 those components.

14 And then in your lower internals assembly there,
15 too, in the encore guide tubes there is a spiral right in
16 this area that is castaustenitic stainless steel and we will
17 have to evaluate that.

18 DR. SHACK: Are your baffle bolts 3.04?

19 MR. GILREATH: Yes, sir.

20 DR. SHACK: And no coal work?

21 MR. GILREATH: No coal work.

22 DR. SHACK: So you are relatively unique that way
23 in B&W units?

24 MR. GILREATH: Yes, sir. Which may, actually, you
25 know, we think we can use that to our advantage because the

1 bolts themselves, you know, we obviously could remove those
2 in an inspection and do further studies that would reflect
3 how pretty much the whole internals would be behaving,
4 because that would be your lead component. And, so, we
5 think that is going to really help us.

6 DR. SHACK: It could be more susceptible to
7 swelling, too.

8 MR. GILREATH: Well, Frank Gardner has mentioned
9 that to us also, and he is helping us develop a program. He
10 has looked at our internal design, and a few things about
11 the internals are unique to B&W. Let me just point those
12 out real quick. This is a backup slide. When Frank was
13 evaluating -- you know, this is just first shot discussing
14 how our internals may perform. He noticed that in our
15 baffle plates we have some holes that are drilled throughout
16 the plates, or bypass flood holes, pressure relief holes.
17 And also in the plates there are big slots. And so the
18 differential pressure against the baffle plate is very minor,
19 but even to a more concerned with swelling is that the cause
20 of all the interchange of water and the heating effects are
21 not going to be as high on these particular bolts and plates
22 as you might see an internal design does not have all the
23 flow holes. Next slide.

24 CHAIRMAN BONACA: I have a question. You
25 mentioned before we got into different -- that is pretty

1 unique to B&W design. And you mentioned martensitic steel
2 for that?

3 MR. GILREATH: Well, the vent valve itself, this
4 is a drawing of the vent valve. The valve body is
5 castaustenitic stainless steel. Then the retaining wedge
6 here is a 15.4 participate hardening stainless steel. Those
7 particular items have been known to thermal embrittle. And
8 so what we want to do is make sure that with -- there is not
9 much radiation in that area, but it may get to the 10.17th,
10 neutrons per centimeter square range. So, therefore, we
11 just need to evaluate how that will effect the toughness of
12 the material.

13 MR. UHRIG: Will it be a theoretical evaluation or
14 will it be a measurement?

15 MR. GILREATH: Well, presently we do an active
16 test on these valves every outage. We will do an analysis.
17 But in that analysis what we hope to do is to actually take
18 castaustenitic stainless steel from a plant that is shutting
19 down that has a high level of radiation on that component so
20 that we can get some real material properties. Because
21 today there are not many out there in the industry on this
22 item.

23 CHAIRMAN BONACA: The reason why I'm asking is
24 that just the hinges on there. I mean, the valve is
25 supposed to open freely.

1 MR. GILREATH: Yes. Sure.

2 CHAIRMAN BONACA: So you have just hinges there.
3 I'm just not familiar with the size of them, but certainly
4 embrittlement would be a concern that it could drop
5 if we had a failure in there.

6 MR. GILREATH: And that will be evaluated in our
7 program, and we will be inspecting it. But we do inspect
8 those every outage even today, the activation.

9 CHAIRMAN BONACA: That specifically is in your
10 program?

11 MR. GILREATH: Yes, sir.

12 CHAIRMAN BONACA: Well, how do you inspect them
13 now, I'm just

14 curious. You do push it to see if it opens?

15 MR. GILREATH: It is a functional inspection. No
16 visual inspection of cracking or anything.

17 MR. GILL: There is a visual inspection. They
18 lower a tool

19 valve and lift it, and they measure the force of
20 lifting. It is a strobe test, basically. These are
21 considered to be check valves for Section 11. There are
22 about four, I think, for each internals, for us eight. But
23 it is unique to B&W design. It is actually a strobe test
24 that they can visually look at it with a camera sticking in
25 so they can see physically if there is any other

1 abnormalities you can visually look at. This is actually
2 replaceable with the jack screws. You can actually replace
3 the valve itself.

4 DR. SHACK: Now, you look at it with a camera.
5 Did you actually do a visual inspection?

6 MR. GILREATH: Yes.

7 CHAIRMAN BONACA: Now, you mention martensitic
8 steel for those hinges. Is there any specific reason why
9 there was a different kind of material?

10 MR. GILREATH: Not for the hinges, but for the
11 retainment. I'm not sure what material it is for the hinge
12 itself.

13 Mr. Sieber: Well, that would interfere, if it
14 broke off it would interfere with the vessel wall so you
15 would have damage to the vessel wall to some minor extent
16 that it would not be floating around inside the vessel. It
17 would interfere with rod drops.

18 CHAIRMAN BONACA: No, it would be on the outside.

19 MR. GILL: You would probably hear it, too.

20 Mr. Sieber: Probably would.

21 CHAIRMAN BONACA: Okay, thank you.

22 MR. GILREATH: Initially, our approach to
23 resolving these open issues had to do with license and a
24 process. In our reactor vessel internals aging management
25 program we were evaluating the aging effects of the

1 internals. We were characterizing those. We were looking
2 to see if any of these particular mechanisms may effect our
3 internals, trying to perform an some analysis on critical
4 crack sizes, developing methods for particular inspections.
5 The NRC raised a concern that most of those studies, which
6 there are quite a bit -- a few studies are going on, both at
7 Duke and in the industry -- that most of those studies will
8 be over the next five or six years. What they were
9 concerned with was what if a mechanism may not show up until
10 late in the license renewal life, would you be able to
11 detect that. And so they said why don't you go ahead and
12 commit to an inspection program that assumes all these
13 mechanisms occur, and then if you can prove through your
14 evaluations and your analysis that these, the effects of
15 these mechanisms will not impact the function of your
16 internals, then you can make a submittal for us to review
17 and take that particular part of the inspection out of the
18 inspection plan. And, so that was acceptable to us. So
19 through working with NRC we did commit to an inspection
20 plan, and basically took the processes that we were already
21 performing and incorporating them in our inspection plan to
22 help mature the elements of the plan, like the acceptance
23 criteria, the method of inspection, things of that nature.
24 We committed to specific timings. Instead of doing them
25 early in the license renewal life, that we would do some

1 early. We would do some in the middle and some later in the
2 license renewal life to assure that we've been able to
3 monitor any type of aging effect. Also, we would
4 participate with the industry in doing research and trying
5 to better characterize each aging mechanism and we would
6 report that to the NRC. And so we agreed we would commit to
7 an inspection plan, but that inspection plan would mature
8 over the next five years as we go through our process, and
9 as we go through all our research. And so the program
10 itself, the elements in the program will be modified or
11 maturing or evolving over the next few years. As we get
12 more industry data -- we are doing a lot of research in the
13 industry -- and also as we perform some of our analysis. If
14 for any reason that we felt that we could remove any part of
15 the inspection plan, we would have to make a submittal to
16 the NRC for them to evaluate the basis for that removal and
17 come to some resolution at that time.

18 What we came up with in our inspection plan is
19 actually three inter-related inspections. One had to do
20 with inspecting the baffle bolts. We would propose
21 performing a volumetric-type inspection of baffle bolts.
22 There were a lot of aging effects that the baffle bolt may
23 actually see a cracking due to irradiation assisted stress
24 corrosion cracking. Reduction of fracture toughness due to
25 irradiation embrittlement, and dimensional changes due to

1 void swelling. This is an inspection that we will plan to
2 do early in the license renewal life, in the middle and in
3 the end. During that inspection as we evaluate how we might
4 utilize some of those bolts, we may be removing some of
5 those for further analysis.

6 We committed to a, we expect our castaustenitic
7 stainless steel inspection will assist with some type of
8 visual, one type of visual about the enhanced DT-1 or DT-3.
9 What we are going to do is perform an analysis, and first
10 we've got to come up with some material property data. Once
11 we do that we are going to perform an analysis, come up with
12 a critical crack size, and at that time we will be able to
13 determine what method we want to use for an inspection.

14 With the other components in the internals there
15 are quite a few; the baffle plates, the former plates, the
16 core barrel bolts, different components. We have planned to
17 perform a visual inspection of all the other items, and also
18 in this area we will be looking at material properties of
19 three or four different plates, for instance. That will be
20 critical crack sizes, so that we can determine what size
21 crack would effect the function of the internals and develop
22 our inspection program around that.

23 We will probably be using some of the baffle bolts
24 to lead items on potential change and to avoid swelling, but
25 that could change once we do an evaluation. We are really

1 where the gamma heating effect is. Apparently, the gamma
2 heating effect and irradiation are the two concerns that
3 need to be addressed with swelling.

4 We've got an ongoing program right now with our
5 core barrel bolts and thermal shield bolts that we have done
6 volumetric exams in the past. We are doing visuals now
7 every outage. We've got a program in a BWOG that is
8 evaluating what would be the best method of inspection in
9 the future. We are kind of waiting for the deliverable
10 there from BWOG to determine exactly how we'll inspect those
11 bolts.

12 DR. SHACK: What is your dose map look like? How
13 much of this core is really in a kind of a high EPA state,
14 kind of a radiation system track point of view?

15 MR. GILREATH: Let me see if I have a backup slide
16 for that. In the area of the fuel itself the dose rates, or
17 the accumulated affluence are pretty high. They can see as
18 high as 10 to the 23rd neutrons per centimeter square. But
19 it falls off pretty quick. The core barrel itself, I think,
20 is more like 5 times 10 to the 21st. That's a ballpark
21 number. I'm not quite sure about that core barrel. We knew
22 that if we could get the lead component, three or four
23 material, developing an inspection planned around the lead
24 components we will be able to pretty much map out the effect
25 to the whole internals.

1 DR. SHACK: Where do you say go below 10 to the
2 21? How high up would you have to go?

3 MR. GILREATH: The map that I've seen, basically,
4 they do not go -- we do not have maps that go up into the
5 plenum area. Therefore, you know, we were wanting to be
6 able to say, for instance, the spacers may be below 10 to
7 the 20th, and wouldn't be concerned of radiation
8 embrittlement, but there are some people that believe even
9 though you may be below that particular threshold, is there
10 a synergistic effect. So, what if you only have 10 to the
11 18 neutrons per centimeter square, will that, coupled with
12 thermal embrittlement, effect the spacers. So we do not
13 have maps right now that go up real high into the upper
14 internal, but here it is pretty even across the core. This
15 area would be like 10 to the 21st, and come all the way down
16 to the 10 to the 23rd, and then come back off 10 to the
17 21st, 10 to the 20th, in that rank. So, pretty much the
18 length of the core you are going to have maximum affluence.

19 As I have mentioned before, instead of committing
20 to one inspection, we have committed actually a minimum of
21 three inspections. One, early in the license renewal
22 period. The second one would be in the middle. The third
23 would be in the third period of license renewal period.
24 However, it would be prior to our last year of operation.
25 We expect that this particular program, we'll be able to

1 utilize it for other plants that have the radiations out
2 that far. So, you know, we are pretty much committed to
3 this inspection plan.

4 I just want to mention a little bit -- I don't
5 know how much you know about all that industry is doing in
6 this area, but we have committed to participate with the
7 industry. Primarily, a B&W owners group has a reactor
8 vessel internals aging management program with quite a few
9 elements in it looking at Oconee specific, or the B&W
10 specific internals, and we are going to be utilizing a lot
11 of the programs coming out of there. To give you just an
12 idea of that schedule, just an idea of some of the tasks we
13 are doing, we are doing studies on swelling and gas. Pretty
14 much everything we've discussed today, the B&W owners group
15 is addressing. We have a five year plan to come up and to
16 evolve or mature all the elements in the inspection program,
17 utilizing industry data. So at a particular time we will be
18 submitting a program to the NRC for review before at least
19 two years prior to our first inspection.

20 Also, we are working with other groups. EPRI has
21 a large group, material liability program issues task group.
22 In that group we've got some of the same elements and other
23 elements working with the whole industry and addressing or
24 trying to characterize the aging effect. And, two, the job
25 program, or joint baffle bolt task team. That's a program

1 that went out and looked at the international programs,
2 tried to find out where we thought the most work was being
3 performed. We found EDF with a very large program. And so
4 we are funding some of that work and we've submitted our
5 materials also to be integrated with their program. And
6 just in the job itself there are over a hundred and forty
7 deliverables that are already part of the contract.

8 The reports I mentioned, our first report to the
9 NRC was the topical report, BAW-2248, that addressed the
10 effects of reactor vessel internals. We just received a SER
11 on that in December.

12 Other reports that we are committed to, as our
13 program evolves we are going to submit reports to the NRC
14 every time we complete a significant milestone for review.
15 And then our first report will go in within one year of
16 receiving a license. Then our last report will be two years
17 prior to our first inspection, when we will have all our
18 inspection methods resolved or committed to and what the
19 acceptance criteria will be, things of that nature.

20 Are there any other questions?

21 CHAIRMAN BONACA: I understand you have to report
22 to the NRC and the two years, it will be two years before
23 the end of the current cycle.

24 MR. GILREATH: The first report will be within one
25 year of receiving a license for licensing, for extended

1 license.

2 MR. GILL: Sometime next year.

3 MR. GILREATH: Sometime next year. And then our
4 last or final report will be two years prior to our first
5 inspection. So it will be pretty much when license renewal
6 begins, that period.

7 CHAIRMAN BONACA: And that report, focusing on
8 that one, that one will really contain much of the detail
9 that you are going to gain from all the activities you have
10 with EPRI, and with the ---

11 MR. GILREATH: Yes. It is really essential that
12 we get that material property data, and we will be
13 submitting that to NRC. As a matter of fact, we are going
14 to Washington in April to go over the whole industry program
15 with the NRC, the EPRI program, the BWOG program, and
16 others.

17 CHAIRMAN BONACA: It will be interesting because
18 there is a lot of activity going on. Okay, thank you. We
19 are running a few minutes ahead of time. We can take a
20 break now.

21 MR. GILL: That concludes our morning
22 presentation.

23 [Recess.]

24 CHAIRMAN BONACA: Okay. So let's resume the
25 meeting, and we have representation from the staff now

1 regarding the SER and the closure of the open items.

2 MR. GRIMES: Thank you, Dr. Bonaca. My name is
3 Chris Grimes. I'm the Chief of the License Renewal &
4 Standardization Branch. And by way of introducing Joe
5 Sebrosky, who is the Project Manager for the Oconee License
6 Renewal Application. I would like to compliment the
7 committee on holding a meeting here at Oconee, providing an
8 opportunity for more access by the interested public, and
9 also bringing the renewal activities to the site so that the
10 plant people can see the licensing process. I think that is
11 a good move on the Committee's part, and we will plan for
12 that for future renewals.

13 With that, Joe is going to go through and present
14 the staff's presentation and we are prepared to respond to
15 any questions that you have about the staff's safety
16 evaluation basis.

17 MR. SEBROSKY: Good morning, my name is Joe
18 Sebrosky. I'm the project manager for the safety review for
19 the Oconee License Renewal Application. I would just like
20 to point out that we have several members of the staff in
21 Washington that are standing by to support the meeting.
22 They have copies of the slides. So, I am going to be
23 calling out the slide numbers just so they can keep abreast
24 of where we are at.

25 As far as the presentation, I'd like to just give

1 you a brief overview of where we were and where we are at
2 right now regarding the safety review aspect of the license
3 renewal application. And then discuss the resolution of the
4 open and confirmatory items, some discussions that were
5 added to Oconee SER since the last version was published in
6 June of '99. And then a summary of the license renewal
7 application review activities that are to be completed
8 before Duke gets its renewed license.

9 The last time we made a presentation to the
10 subcommittee was based on a June 16th, 1999 version of the
11 SER. We had a meeting with the ACRS Subcommittee over two
12 days on June 30th and July 1st, and we also interacted with
13 the full committee on September 1st. Since that time we
14 provided the ACRS with an update to the SER on February 3rd
15 of this year.

16 The February 3rd version of the SER contains
17 several updates to the June version of the SER.
18 Specifically, it closed the open and confirmatory items
19 contained in the June version of the SER. There were
20 forty-three open items and six confirmatory items that were
21 closed in the February 3rd version. There were also new
22 evaluations that were added due to license renewal
23 application update or because of a Duke response to an SER
24 open item. I'll point those out towards the end of the
25 meeting, specifically what added evaluations were put into

1 the SER as a result of those.

2 And, finally, we did make changes to the SER based
3 on technical comments that we received from Duke. Back in
4 October when they provided the responses to the SER open
5 items they also gave us technical comments that resulted in
6 some changes.

7 On to slide five. I'd like to -- we are modeling
8 this presentation over the presentation that we gave to the
9 ACRS for Calvert Cliffs. And, specifically what we are
10 doing is we are breaking down the open items based on the
11 division responsibilities within the Nuclear Regulatory
12 Commission.

13 There are four divisions that were involved in the
14 review of the license renewal application. The division
15 that I'm in, which is Regulatory Improvement Programs, the
16 Division of Inspection Program Management, Division of
17 Systems, Safety Analysis, and finally, the Division of
18 Engineering.

19 For the Division of Engineering open items, since
20 they had the majority of the review, I've actually, we've
21 broken those items up into the respective branches. And as
22 far as going through the presentation for each of these
23 divisions, what we tried to do was tell you what the top
24 issues were, and then also have a discussion of all the
25 other open items. Doctor Bonaca, Noel indicated to me that

1 you may have some questions that may not necessarily be in
2 the top issues. I'll try to call those out when we come to
3 those slides.

4 As far as the top issue that was resolved within
5 my division, that was, we had an open item regarding the
6 content of the UFSAR. That was open item 3.0-1. Currently
7 right now we are in the process of reviewing Duke's draft
8 UFSAR supplement that they have updated because of the SER
9 and because of changes that have been made to the
10 application as a result of the review. We intend to have
11 that review completed and reach an agreement on the UFSAR
12 supplement before we go forward with the commission
13 recommendation.

14 So, the basis for the resolution was basically
15 that the staff would review the detail content of the UFSAR
16 supplement, and prior to going forth with commission
17 recommendation agree on a resolution.

18 MR. GRIMES: I would like to add to that. Since
19 we issued the draft revised UFSAR supplement to the staff,
20 along with guidance explaining what the content changes are,
21 pursuant to 57.1E, and the guidance that has been developed
22 and relative to changes in 50.59, so that the staff would be
23 able to view the contents of the UFSAR in the context of the
24 regulatory process that is going to maintain the licensing
25 basis in the future. And any issues that stem from the

1 staff's review of the UFSAR supplement, we would intend on
2 identifying and tracking in the same way that we identified
3 and tracked resolution of open items in the UFSAR itself.

4 MR. SEBROSKY: The next division was the division
5 of inspection program management. The branch within that
6 division that was involved with the review was the quality
7 assurance branch. They were the lead on the scoping issue
8 that was discussed this morning with Duke, and also on
9 several other items.

10 This slide, just on a high level, provides an
11 overview on the basis for the resolution of the open item,
12 and it reiterates what Duke presented this morning, the fact
13 that we asked them to look at ten additional events, and
14 based on them not identifying any additional systems,
15 structures or components, we felt comfortable and it gave us
16 a reasonable assurance that the scoping was done properly.

17 CHAIRMAN BONACA: On a genetic basis, but we are
18 talking about the SOP, etc. It is better for the older
19 plants in need of being more specific than just -- I'm not
20 sure that 50.54 specifically felt this is all Chapter 15.

21 MR. SEBROSKY: We don't, we didn't agree with the
22 view that design basis events. It says narrow as the way
23 that Duke explained that they maintained the licensing
24 basis. But we do agree that the end result, by virtue of
25 the overlapping scoping techniques, captured all of the

1 necessary systems, structures and components that are relied
2 upon to prevent or mitigate events that are described in the
3 licensing basis. That is how we selected the ten additional
4 events to evaluate. And I would expect that we would take
5 that experience and feed it back into improved guidance for
6 the standard review plan, and possibly even we can work
7 something out with the industry group, guidance for the
8 industry guide 95.10 that would explain how to review plant
9 capabilities in a broader way.

10 I'd also mention that after the generic aging
11 lessons learned, an SRP update, we have a commitment to the
12 Commission to the consider rule-making, and I would expect
13 that if there is an opportunity for us to clarify the
14 language in part 54 that describes scoping, to make it more
15 consistent with the evolving design basis description under
16 50.2., and the other language that describes design basis
17 events. And 50.49, for environmental qualification. And
18 the maintenance rule. There's a maintenance rule workshop
19 that was just held two days ago. As all that experience
20 comes together it is conceivable that we can clarify that
21 the expectations for future renewal applicants.

22 CHAIRMAN BONACA: Good.

23 DR. SHACK: Does the latest revision of 95.10
24 incorporating this? I mean, would you expect to see the
25 future applications discussion?

1 MR. SEBROSKY: 95.10 addresses scoping and
2 addresses methodology, but to the extent that it doesn't get
3 into this what is a design basis event, and how is the
4 definition of current licensing basis in part 54 intended to
5 be applied to a current licensing basis, that is still an
6 area where these other activities going on in 50.2 with the
7 industry. There is guidance there. There is guidance for
8 50.59. There is guidance for the maintenance rule. All of
9 those things sort of surround this thing. If we could bring
10 some more focus to it, I think that would make the process
11 more efficient and predictable in the future.

12 Go on to other issues that were resolved for the
13 quality assurance branch under slide number eight. We did
14 have an open item relative to the corrective action for
15 non-safety related systems. The resolution for that is
16 basically the UFSAR supplement. Duke is identifying under
17 one of their attributes corrective actions, specifically
18 what process will apply to both safety related and
19 non-safety related systems.

20 I'd like to move on to DSSA, which is slide nine.
21 Basically, as far as the top issues go within this division,
22 they are the division that did the scoping. The systems
23 groups looked at the scoping to make sure that the
24 boundaries were appropriate, and also challenging in some
25 cases whether or not systems should be within scope.

1 The top issues that I identified for the division
2 were the ones that added additional system structures of
3 components. We had three open items that did that. There
4 was the -- we challenged the chill water system, which is
5 the heat sync for the control. As a result of that Duke
6 scoped that in and we reviewed that, performed an Aging
7 Management Review. So you will see added discussions both
8 within Chapter 2 of the SER, and also within Chapter 3 where
9 we asked the Division of Engineering to look at the Aging
10 Management Review for that.

11 Also, the other two open items were associated
12 with the ventilation sealant material, and one was with the
13 passive long-lived equipment excluded from AMR. If you go
14 back to the tour that the ACRS took yesterday of the
15 standby-shut down facility, this one issue dealt with
16 skid-mounted equipment, which the diesel was considered to
17 be skid-mounted equipment. The question that the staff had
18 was were the boundaries that Duke originally drew
19 appropriate. When they drew those boundaries, skid-mounted
20 equipment, like some of the heat exchanges that were on the
21 skid were excluded from an aging management review. We
22 didn't agree with that. We challenged that. Duke
23 subsequent to the initial application provided aging
24 management review from its components.

25 And lastly, under one of the top issues that was

1 resolved for DSSA, there was an issue that came up late in
2 the Calvert Cliffs review regarding ECCS piping insulation
3 and whether or not that should be within scope. The staff
4 asked a question about that and Duke gave us justification
5 for their design as to why the piping insulation, they did
6 not need that to meet any of the criteria in 54.4A1, A2 or
7 A3. We agreed with that, but there was an additional
8 evaluation and exchange of information that was done. You
9 also see that in the SER.

10 MR. GRIMES: I would like to clarify. That was
11 insulation on 4A water system piping and whether or not the
12 insulation was necessary in order to insure that the
13 sufficient statement and solution. So it wasn't insulation
14 in a broader context, it was for that specific functional
15 capability.

16 MR. SEBROSKY: The next slide is other issues that
17 we resolved within DSSA. I didn't plan on talking about
18 each one, but there was one, Dr. Bonaca, that you had
19 indicated some interest in, and that was on the recirculated
20 cooling water system, which is the heat sync for the spent
21 fuel pool. We have the staff available if you have any
22 questions about that.

23 CHAIRMAN BONACA: No. I think with the review of
24 yesterday in the afternoon, I think that we recognized that
25 what you did, which really is not part of the licensing

1 basis, the current licensing basis for the plant. We still
2 have questions regarding the loss of spent fuel cooling
3 event as a basis for the pool. Clearly it is not the basis
4 for cooling. We heard that the makeup water system is
5 circulated. It can be used to make up water in case the
6 cooling system is lost. That was the basis for your
7 cooling, I believe. I believe that the membership accepted
8 that yesterday as recognizing that as a means of cooling the
9 pool and making up the water.

10 DR. POWERS: I guess I would characterize the
11 members have heard that. I would characterize it as saying
12 the members heard that.

13 CHAIRMAN BONACA: Yeah.

14 DR. POWERS: I wouldn't say that there was any
15 endorsement.

16 CHAIRMAN BONACA: True. True.

17 MR. SEBROSKY: But I would also like to add that
18 was one of the areas that we explored very carefully in
19 making sure that we understood what the licensing basis was.
20 And we did consider it very carefully, and DSSA affirmed
21 that was the way that a number of plants are currently
22 designed and licensed. We considered whether or not there
23 were any risk insights that warranted pursuing that separate
24 from licensing. Mr. Gratton explained in the conference
25 call that we had that their understanding of the licensing

1 basis were prepared to pursue that separately with the ACRS
2 if you like.

3 CHAIRMAN BONACA: Before you move that, I had a
4 question regarding the open item 2.2.3.7-2 regarding active
5 equipment in storage, if I remember. I understand that you
6 agreed not to include that equipment in scope. I personally
7 agreed with that. The only question I have is that because
8 Duke said that they are routinely inspecting and testing
9 their equipment, so therefore it is maintained in a way that
10 -- but it seems to me that in any event the equipment is
11 being inspected, tested, installed and then tested when it
12 is installed anyway. Why would you consider possibly in
13 scope? I'm trying to understand, you know, for example, how
14 will you address this issue? Do you still have a
15 requirement that this be ---

16 MR. SEBROSKY: The way that the issue came up was
17 that there was equipment that is warehoused that has passive
18 elements, and whether or not the passive features of that
19 equipment need to be managed while over time because the
20 aging effects are the same whether or not the equipment is
21 being used or in storage. It is more the process by which
22 the equipment that is taken out of storage and then put into
23 service is verified as suitable for service that provides us
24 with a process assurance that if there are any applicable
25 aging effects, if they are not managed or at least checked

1 before the equipment is put in and then subjected to the
2 routine inspection program. So, that's the way the issue
3 started to evolve. It was, well, do we need to have an
4 aging management program for this equipment while it is in
5 storage. And we concluded that by virtue of the process
6 that certifies spare parts for use, that provided sufficient
7 assurance that if there were any aging effects they would be
8 identified and then checked before the equipment is actually
9 put into service.

10 CHAIRMAN BONACA: Yeah, that point I made, I
11 totally agreed with that, with the conclusions that you made
12 regarding that. I just believed that those conclusions are
13 pretty genetic because the process is by which the utilities
14 install the spare parts. It is very similar. You have to
15 set the specific requirements and go through, which would
16 include the inspection and the testing, and then selection
17 testing.

18 MR. SEBROSKY: The reason that the issue came up
19 for Oconee is if you look at the scoping criteria one of the
20 criteria is regulated events, 54.4A3. There is an appendix
21 R. As you noted yesterday on the tour, Oconee has some
22 unique features. For example, the turbine building, that's
23 where the emergency feed water pumps are located. They are
24 not located in the ox building, so there is a vulnerability
25 to a fire in the turbine building. That's why they added,

1 one of the reasons they added the standby shut down
2 facility. So, when you go their Appendix R requirements,
3 they rely on a lot of cabling that is in storage. Also
4 pumps and breakers that are in storage to help recover from
5 a fire in the turbine building. The staff looked at that
6 and they noted that Duke had looked at the passive
7 components, the cables, and did an aging management review
8 and determined that the cables were in a benign environment.
9 But we asked about the active components, and that was the
10 reason for that open item.

11 So, it is somewhat related to the unique nature of
12 Oconee's licensing basis. That is why the question was
13 asked.

14 MR. GRIMES: I'm sorry, I didn't respond to your
15 specific question. Yes, I would expect to add guidance in
16 the standard review plan that explains why we do not need to
17 be concerned about aging management programs for equipment
18 that's in storage.

19 CHAIRMAN BONACA: Okay. Good.

20 MR. SEBROSKY: I guess as far as the top issues,
21 I'd like to move to the Division of Engineering. We've
22 broken it down by branch here. For the materials in the
23 Chemical Engineering branch, the top issues that we
24 identified for this branch, if you go to slide 11, are those
25 associated with the reactor vessel internals. And if you go

1 back to Duke's slides this morning, this slide is consistent
2 with that as far as the open items that were associated with
3 the internals.

4 Are there any questions that the ACRS members have
5 of the staff?

6 CHAIRMAN BONACA: I think that we saw a very
7 comprehensive program that addresses a lot of the issues
8 from the swelling to others.

9 MR. SEBROSKY: The first issue on the next slide,
10 slide twelve, really involves a reactor vessel internals
11 component. Again, that was talked about this morning.
12 That's the vent valve bodies, internal reactor vessel.

13 The next set of open items dealt with CASS
14 components. Finally, there was a new issue, this 3.4, 3.3-9
15 that was added after the SER was written in June, and that
16 had to deal with reactor vessel monitoring line. The staff
17 questioned whether or not that needed an aging management
18 review. Are there any questions on that?

19 As far as other issues that were in this branch,
20 they had the majority of the open items. There are several
21 items on this slide, Dr. Bonaca, that Noel has indicated to
22 me that you might have questions about specifically on the
23 pressurizer heater sheath-to-sleeve plate, open item
24 3.4.3.3-2. The buried piping, the standby shut down
25 facility HVAC coolers, and the standby shut down facility

1 heat exchanges.

2 CHAIRMAN BONACA: Yes. I had some questions on
3 the pressurizer heater, we discussed it yesterday with the
4 applicant. I understood, the question was more relating to
5 the nature of the one time inspection where you would not
6 have an inspection unless you have a failure to the heater,
7 so I thought that we had characterized one time inspections
8 somewhat differently. Essentially, the inspection that you
9 performed to get a confirmation that in effect is not
10 occurring. Or if it is occurring it is a benign factor.
11 And, so, you know, that was more of a clarification than
12 anything else that we got from the applicant. Everything
13 was fine with that.

14 On buried piping, the questions I have was in
15 several instances, two instances on this. All the
16 inspections for the buried piping of the Kewanee facilities
17 are not really done there. I mean, they are referring to
18 the inspections at Oconee as being indicators of the aging
19 management at the Keowee facility. The reason is that the
20 materials used supposedly are the same between Keowee
21 facility and Oconee facility. I had some questions about
22 two things. One, the environment. It is, in any case did
23 you look at the differences in environment and possible
24 aging effects resulting from it. And second, the Keowee
25 facility was not really under Appendix B program until now.

1 And so, therefore, there maybe -- do you have enough records
2 to say that, yes, you have the same material, the same
3 conditions, and therefore the inspections that would be for
4 Ocone are also indicative of the conditions you would find
5 at Keowee?

6 MR. SEBROSKY: I guess our lead reviewer, and I'm
7 hoping he is on the phone, was Jim Davis. Are you there?

8 Mr. Davis (via telephone.): Yeah, I'm here.

9 MR. SEBROSKY: Jim, I was hoping that you could
10 respond to Dr. Bonaca's questions.

11 Mr. Davis: Well, basically, what they are
12 concerned with is the soil corrosion of a pipe, and with
13 carbon alloy steel you don't see much difference in
14 corrosion rate. Basically what they are doing is they are
15 doing an internal inspection, eleven foot diameter pipes,
16 which counts for about eighty percent of the piping that
17 they have. That's not the recommended way to do things, but
18 we found it acceptable. If there was an oil or gas line, it
19 would be totally unacceptable.

20 The downside is it is going to cost them a lot of
21 money when they see a leak because they are going to have to
22 replace all that piping, probably. But that is their
23 decision to make. They are inspecting eighty percent of the
24 pipe. I see no difference in the, or significant difference
25 in the corrosion rate from soil anywhere that you have

1 buried pipe.

2 MR. GRIMES: And, Jim, correct me if I misstate
3 this, but I think that the way that you described that we
4 would say they were not relying so much on the identical
5 nature of the piping, but more that the inspections that
6 they have provide a bounding circumstance by which any
7 indication would cause them to go look at the effected
8 piping and, as Jim points out, if they find a problem then
9 they are going to do a lot more digging than if they had a
10 more focused inspection activity because of the benign,
11 relatively benign nature and the expectation that they are
12 not going to see a problem, this constitutes sort of a
13 bounding approach to be issued.

14 DR. POWERS: It would be interesting to see the
15 data that suggests that the carbon steel piping corrosion is
16 fairly independent to details of soil conditions.

17 Mr. Davis: Typically, you know the NBS in the old
18 days and this now did a very detailed study of corrosion in
19 soils of steel or alloy steel. They found that the average
20 life is twenty-eight years. This pipe is coated, but it is
21 not cathodically protected, which normally would make it
22 worse. If you are not going to cathodically protect it, you
23 should leave it bare, and then after thirty years replace it
24 all. If you cathodically protect it is good forever. So,
25 I'm not quite sure what there logic is of not cathodically

1 protecting it. But basically, once they see problems they
2 are going to have problems everywhere. They are just going
3 to have to go in and deal with it.

4 DR. POWERS: I guess we would be interested not
5 just in the average life time, but the variable around that
6 average.

7 Mr. Davis: It all depends. It depends on a lot
8 of things. If you find a section of pipe that corrodes
9 through, and you replace that section of pipe, the new pipe
10 will last about six months, because it acts as an anode and
11 cathodically protects the rest of the pipe. So, you get
12 into a real serious problem if you don't use good
13 engineering practice, which a lot of the nuclear industry
14 doesn't, and that piping is not under, there are no rules or
15 regulations to control it. But if they see problems they
16 are going to have to go in and look at all their pipe.

17 DR. POWERS: I guess I'm more interested in the
18 data that led to your conclusion, that there was a fair
19 insensitivity to this type environment.

20 Mr. Davis: It is kind of hard to predict. The
21 variance probably plus or minus ten years, their soil is
22 pretty benign. They could do a soil conductivity
23 measurement, and that would give them a good indication of
24 how corrosive it is. Usually if it is a high resistivity,
25 five thousand centimeters, then the soil is not considered

1 to be very corrosive. But if it is a lower resistance then
2 it is considered to be very corrosive. The program that
3 they propose to go in and inspect periodically, they are
4 going to find leaks if they have any, or depending on the
5 inspection time it takes.

6 MR. GRIMES: Jim, did you mention where those
7 studies are found?

8 Mr. Davis: Yeah. They are NBS and the National
9 Institute Science and Technology did the big studies.

10 MR. GRIMES: The National Institute of Standards
11 and Technologies?

12 Mr. Davis: Yeah. It used to be the NBS when they
13 did the -- but, you know, and the type of soil they've
14 got there, I would expect it to be close to a thirty year
15 life.

16 CHAIRMAN BONACA: You also made a statement before
17 that I don't understand the answer. You said that you would
18 be concerned if in fact the environment was not water, but
19 oil or gas.

20 Mr. Davis: If you have oil and gas pipelines,
21 that falls under Title 49 of the Code of Federal
22 Regulations, and it says, "If you bury a pipe and you've got
23 oil or gas in it, you must coat it and you must cathodically
24 protect it, and then you must monitor it using pipe to soil
25 potential measurements like Calvert Cliffs does.

1 Ocone has chosen not to do that.

2 DR. SHACK: But then Ocone is not transporting
3 oil or gas interstate through cities and ---

4 Mr. Davis: Yeah. And they are not required by
5 law to do it. If they want to replace their pipe every
6 thirty years they have the right to do that.

7 CHAIRMAN BONACA: I understand. Okay. Thank you.

8 DR. SHACK: I guess the other argument is you
9 don't really expect the soil to be terribly different at
10 Ocone and Keowee, so whether it is average soil or not,
11 there doesn't seem to be a reason to believe it is terribly
12 different.

13 Mr. Davis: That's right. You normally expect the
14 higher corrosion rates if you have brackish water or
15 something like that. That is not the case for Ocone, so
16 you wouldn't expect to have a very corrosive soil there.

17 DR. POWERS: I'm going to have to comment on the
18 technical basis for the staff's decision, and I just don't
19 understand the technical basis for this. I guess I
20 understand the technical rationale, I just don't see the
21 data. As far as the variability of soils I think I can see
22 places where soils vary dramatically over the course of a
23 few feet. I don't know whether that's the case here. I
24 don't have enough information on the site to ---

25 Mr. Davis: Normally you would expect to see large

1 variations. What we are relying on here is that they are
2 inspecting eighty percent of a total surface area of the
3 pipe on a regular basis. If they have a problem, they will
4 detect it.

5 MR. GRIMES: And take appropriate corrective
6 action.

7 Mr. Davis: Right.

8 MR. GRIMES: But we can provide the, we can
9 provide the NIST reference, the N-I-S-T references, in terms
10 of the data that lists the variability of corrosion for
11 buried pipe. But otherwise our technical basis is based on
12 inspection and corrective action, not necessarily managing
13 the aging effects that are applicable to the buried surfaces
14 of the piping.

15 DR. POWERS: I think this gives us an opportunity
16 to highlight before the Commission the approach that is
17 adopted here.

18 I think it is an opportunity for us to point out
19 to the Commission that the approach is here. Okay, they've
20 taken the strategy, the strategy will work, because if they
21 find a problem they will have to dig and replace things.
22 You've got some confidence that there is detection because
23 they are doing eighty percent of the tech things, and the
24 other twenty percent we think is much like the remaining
25 eighty percent. But I think we have to have an

1 understanding of the technical rationale for that. We have
2 to see the technical rationale. If it is an engineering
3 guess, that's an engineering guess. If it is based on a
4 careful analysis, it is based on a careful analysis. It is
5 just a matter for us to point it out to the Commission.

6 CHAIRMAN BONACA: Well, actually we are hearing
7 that they are going to inspect and if there are problems
8 they are going to fix them. That's pretty much what I hear.
9 The other issue, you know, it is more regarding the bounding
10 of all systems of the Keowee from Oconee systems.

11 And that ---

12 DR. POWERS: But it is not a random eighty percent
13 they are inspecting.

14 CHAIRMAN BONACA: That's right. It's ---

15 DR. POWERS: It is a distinctly unrandomed eighty
16 percent.

17 CHAIRMAN BONACA: Right. So that would be right.

18 MR. SEBROSKY: Well, I'd just point out on this
19 slide, before we leave this slide, there were two other
20 items, 3.2.12-1 and 3.2.12-2.

21 CHAIRMAN BONACA: I had a couple questions of
22 this. One was for the SSF HVAC coolers. You had a question
23 regarding the need for providing both floor measurements and
24 measurement to assess if there was any measure of loss of
25 material, for example, that would effect the changes. I

1 believe the resolution was that the frequency of testing is
2 such that the flow measurement can be relied upon to detect
3 if there is any change. I didn't understand. There was no
4 specific explanation in the SER why lack of identity allows
5 you to get that assessment and the field loss.

6 MR. SEBROSKY: Our reviewer for that is Stephanie
7 Coffin. Stephanie, are you there?

8 Ms. Coffin (via telephone.): Yes, I'm here.

9 MR. SEBROSKY: And did you hear Dr. Bonaca's
10 question?

11 Ms. Coffin: Yes, I did. The answer is they do
12 measure across those heat exchanges. Not as part of their,
13 in response to open item what they propose with the new
14 preventive maintenance activity that we reference in closing
15 out this open item. And in that PM activity they do measure
16 it across the heat exchangers.

17 CHAIRMAN BONACA: Okay. That is not what is
18 documented in the SER, but that is fine. So I'll take it as
19 the answer to this question. And I had one more question
20 regarding the 3.2.13-2. That's where carbon steel
21 inspection indicate, a user indicator of conditions of known
22 carbon steel components. And the specific question was that
23 the carbon steel inspections are used as lead indicator of
24 conditions such as, for example, a MIC attack. Or other
25 that it may cause pitting. And the position was that this

1 type of corrosion does not effect the destruction of any of
2 the components. Okay, if you have a MIC attack you
3 typically have a pin hole leak and therefore you can't
4 identify it ahead of time. I wanted to hear more about
5 that, because for my limited experience with MIC attack,
6 I've seen pipes literally devoured inside by MIC attack.
7 There was a pin hole leak, but the pipe was ready to go.
8 And maybe even in a more -- so I would like to hear the
9 technical phases for concluded that this is a --

10 MR. SEBROSKY: And Stephanie before you give the
11 answer I guess I just wanted to make sure I -- that, if I
12 understand correctly, it is actually on slide fourteen, and
13 the question that you have is on 3.2.13-2, correct?

14 CHAIRMAN BONACA: Yes.

15 MR. SEBROSKY: I think I had the wrong slide up.
16 Stephanie, did you understand the question?

17 Ms. Coffin: Yes, I did. The basis for closing
18 out this open item was Oconee's operating experience with
19 their service water system. They have been doing these
20 inspections for close on twenty years now, and they have not
21 found any, not had to replace any kind of piping due to
22 corrosion concerns. They haven't documented any indications
23 of problems with MIC, or very localized degradation with
24 problems that they've seen in their service water piping is
25 general corrosion for the techniques they are applying are

1 acceptable. That doesn't mean that this isn't a concern to
2 the staff, and what the licensee, and the licensee
3 recognized that and they committed to following more closely
4 the results of those service water inspections as well as
5 other, say, specific materials to document any times that
6 they have a degradation due to a localized corrosion
7 phenomena and consider its relevance to the service water,
8 service water piping inspection and factor that into how
9 they are approaching maintaining the integrity of their
10 service water piping.

11 MR. GRIMES: Another way I would put that is, the
12 general, the inspection activities associated with general
13 corrosion and plant conditions will identify if MIC becomes
14 a concern in the future, or any other aging effect for which
15 there hasn't been any present evidence warranting a specific
16 aging management program. So it goes beyond just a
17 particular concern about microbiologically induced
18 corrosion. I thought I'd say what MIC is, because you have
19 to say it so slowly. So in that sense this conclusion is
20 very general for us. If there hasn't been any evidence of a
21 particular aging effect, we still rely on the general
22 programs to reveal and deal with any evidence if it occurs
23 in the future.

24 MR. SEBROSKY: We've actually moved onto slide
25 fourteen. There weren't any other questions that I noted on

1 slide thirteen. But since we've moved onto a new slide, Dr.
2 Bonaca, Noel indicated to me that there was also a question
3 that you had regarding 3.2.13-3 on the relationship of the
4 program to Keowee, and also on 3.2.13-4 on the UT inspection
5 capability, located degradation.

6 CHAIRMAN BONACA: Yes. The first one we already
7 discussed. That was related to the same question that we
8 had before, relationship between inspection for Ocone and
9 Keowee. And the other one ---

10 MR. SEBROSKY: I guess the question that I had
11 from Noel was regarding 3.2.13-4 is, "What is the staff's
12 basis for finding the applicant's justification acceptable?"
13 Some localized degradation mechanisms may not be bounded by
14 inspection for general corrosion and may result in pipe
15 failure.

16 CHAIRMAN BONACA: Yes. That was UT test, which
17 are not very effective to identify. That was the point I
18 had. There are none, as far as I understand it, where you
19 are effectively localizing, identifying localized pitting,
20 and microbiologically induced corrosion. And so I would
21 like to hear more about that.

22 MR. SEBROSKY: Again, the reviewer for this open
23 item is Stephanie Coffin. So, Stephanie, if you could
24 respond to that.

25 Ms. Coffin: The reason why open item 3.2.13-4 is

1 related to closing out 3.2.13-2 and because the staff
2 accepted that general corrosion with the limiting
3 degradation note for this service water piping, UT is an
4 acceptable technique to use. If they have to change their
5 program in response to finding the localized pitting or mix,
6 they have committed to changing their techniques to use one
7 that is qualified for the application, which means it won't
8 be UT, it will probably be a visual inspection. I can't
9 think of what much else you could use. I don't know if you
10 heard, did you hear what Jim Davis ---

11 MR. SEBROSKY: No, we did not hear what Jim said.

12 Ms. Coffin: Jim also pointed out that they also
13 have their

14 heat exchanger performance testing, which would
15 also tell you that you may have a MIC problem because you
16 would get fouling. So that is sort of a secondary
17 measure in place to let you know that may be of a concern in
18 your plan.

19 MR. SEBROSKY: The rest, if that answers your
20 question, the rest of these open items on this slide dealt
21 with TLAA's and some -- TLAA's being Time Limited Aging
22 Analysis -- and also some confirmatory items. Were there
23 any questions on those? I didn't note any. On the ones
24 that are left on the slide, Dr. Bonaca, I didn't note any
25 that Noel indicated. As a matter of fact, I believe that of

1 all the questions that Noel forwarded to me that we
2 addressed all the items.

3 CHAIRMAN BONACA: But I have more.

4 MR. SEBROSKY: I understand. I understand. I
5 guess, moving on, the next group is the mechanical
6 engineering branch within the Division of Engineering on
7 slide fifteen. Our reviewer for this was John Fair, and
8 I'll just give a high level overview and then ask John to
9 address the specifics. John, are you there?

10 Mr. Fair (via telephone.): Yes, I'm here.

11 MR. SEBROSKY: And basically, I guess, what I
12 wanted to say as a high level overview is we presented three
13 options to Duke, and they chose an option that is a plant
14 specific option, similar to what Calvert Cliffs chose. So
15 the resolution for Calvert Cliffs and Oconee for this issue
16 are the same. And, John, is there anything that you wanted
17 to add?

18 MR. FAIR: The only thing I wanted to add is that
19 the resolution for both Calvert Cliffs and for Oconee is
20 consistent with the recommendation that came in on GSI-190,
21 which was to do something to monitor the effects of fatigue
22 cracking due to environmental concerns. So it is consistent
23 with the GSI-190 resolution.

24 CHAIRMAN BONACA: Did Duke use the same locations
25 for monitoring that the GA used? I know they identified

1 them from the regs 60-260 or so. That's fine by me.

2 MR. SEBROSKY: John, did you hear the question?

3 MR. FAIR: Yes, I did. They are essentially the
4 same as were used by Calvert Cliffs, and the ones from Duke
5 are out as new regs 60-260. Several of the new regs 60-260
6 locations were addressed in the topical report on the
7 vessel. And the remaining ones that weren't addressed by
8 the topical report on the vessel, Duke is going to evaluate
9 the GSI-190.

10 CHAIRMAN BONACA: Okay, and that is responsive to
11 the recommendation that you are giving on the closure?

12 MR. FAIR: That's correct.

13 MR. SEBROSKY: Were there any other questions on
14 that?

15 CHAIRMAN BONACA: No questions.

16 MR. SEBROSKY: As far as the rest of the issues
17 that were in this branch, there weren't any that were
18 identified to me before hand. The issues that we had open
19 items on were: containment tendon anchorages; letdown
20 cooler thermal fatigue; aging effects of HVAC
21 sub-components; the reactor coolant pump oil tank inspection
22 plan; spent fuel pool temperature. And then we also had
23 several related to structures and the secondary shield wall.
24 Were there any questions about how those were dispositioned?

25 CHAIRMAN BONACA: No. We discussed the secondary

1 shield wall yesterday, the pre-stressing tendons, that the
2 aging issues that are different than the ones for the
3 containment.

4 MR. SEBROSKY: That's correct.

5 CHAIRMAN BONACA: And it was explained to us that
6 the program that is being utilized to manage the tendons in
7 containment is different from the one for the shield wall.
8 But it seems to be like a comprehensive problem, also the
9 one for the secondary shield wall.

10 MR. SEBROSKY: And, finally, slide seventeen
11 finishes up the issues that are within this branch. These
12 relate, again, to time limited aging analysis, and also some
13 confirmatory items that we had. Were there any questions on
14 that?

15 CHAIRMAN BONACA: Yeah. There was a time-limited
16 aging analysis to do with the tendons, right? But they have
17 chosen not to just before the inspection, so that is why
18 they are gone? And that closes the whole issue?

19 MR. SEBROSKY: Hans -- yeah -- our reviewer on
20 that is Hans Ashar. Hans, are you there?

21 Mr. Ashar (via telephone.): Yes, I am here.

22 MR. SEBROSKY: Did you have any comments on Dr.
23 Bonaca's observation?

24 Mr. Ashar: No, I think his observation is
25 correct. We had hoped to have enough data that can provide

1 a tendon drain line based on the previous data, and the
2 drain line so that the forces are good enough for sixty
3 years. But in the case of Ocone, that was not possible
4 because they did not have random sampling data earlier. So
5 they chose a management program. They are going to comply
6 with the regulations regarding the drain line and not
7 meeting the second requirement in the drain line
8 requirement.

9 CHAIRMAN BONACA: I understand now they've gone
10 from sampling the same nine tendons to sampling random
11 samples?

12 Mr. Ashar: That is correct. Yeah. That is
13 correct and they are going to implement a subsection item
14 for section 11, a project tendon inspections.

15 MR. SEBROSKY: If there aren't any more questions
16 on slide seventeen I'll go ahead and move to slide eighteen.
17 This is in our Electrical and INC branch within the Division
18 of Engineering. Paul Colaianni gave a discussion on it this
19 morning. The issue was actually added as a result of an
20 inspection. Caudle Julian and Vic McCree from region two
21 are here. And as a result of the second inspection, they
22 identified that there were aging effects with the cabling.
23 As a result of that we added an open item. Duke gave us an
24 aging management program that we reviewed and found
25 acceptable.

1 Our lead reviewer on that is Paul Shemanski.

2 Paul, are you there?

3 Mr. Shemanski (via telephone.): Yes, I'm here,
4 Joe.

5 MR. SEBROSKY: Was there anything that you wanted
6 to add to that discussion?

7 Mr. Shemanski: No, not really. I thought Paul
8 Colaianni gave a

9 pretty good description of the overall program. I
10 guess the only thing I would like to point out though is
11 that this is a new program for Duke. When the application
12 came in they identified basically three potential aging
13 effects; radiation, thermal and moisture. In the
14 application they concluded that none of these were basically
15 applicable aging effects. And as a result of our inspection
16 we found some evidence that the staff felt, you know, we
17 recommended or felt we needed an aging management program
18 for cables. Subsequently, Duke came in and we worked very
19 closely with them on the attributes of the program. Since,
20 again, this was a new program, so I think we are satisfied
21 generally that the proposed program would be acceptable. It
22 is based primarily on inspection. That is basically what I
23 have to say.

24 MR. SEBROSKY: Were there any questions on this
25 item?

1 I guess that ends the discussion about the open
2 items and the confirmatory items. What I'd like to move on
3 to is just to point out to the ACRS members the added
4 discussions that were put into the SER from the June
5 version. I have several slides on this.

6 The first slide just identifies responses to open
7 items that resulted in SER sections. The majority of these
8 were identified in the June version, but as we said you will
9 notice that there is one on insulated cables and one on
10 reactor vessel monitoring pipe that were added after the
11 June version.

12 Regardless, as a result of the open items that are
13 on this slide, scoping was done by DSSA, Division of Systems
14 Safety Analysis. An Aging Management Review was done by the
15 Division of Engineering. And sections were changed in both
16 Chapter 2 and Chapter 3 for the Oconee SER for these as a
17 result of the NRC open items.

18 The next slide, slide 20, and I apologize on
19 missing a nine here, but on the September 30th, on September
20 30, 1999, Duke gave us a license renewal application update
21 that is required by 10CFR 54. They identified several new
22 system structures or components that were added as a result
23 of changes to the current licensing basis. This slide just
24 details those things such as the essential siphon vacuum
25 system, portions of the component cooling water system being

1 expanded and portions of the low pressure service water
2 system being expanded. The staff did a review and again
3 made changes to the SER based on this.

4 The next slide just provides details of what
5 Duke's technical comments were. If you go back to the
6 October 15th letter that Duke gave us, in that letter they
7 provided us all the written responses for the open and
8 confirmatory items, and they also gave us this list of ten
9 items to look at. In some cases we identified that there
10 were no changes necessary to the SER and we discussed that
11 with Duke. But in other cases, for example, we added the
12 discussion about the leak before break, that was about a
13 page long. And we've clarified some other things as a
14 result of Duke's comments. Are there any questions on that?

15 Then I guess the final slide is basically a
16 schedule of where we go from here. This just identifies the
17 end gain, including the sub-committee and the full-committee
18 meetings, and also the ACRS letter. But we have several
19 actions that we have to complete, including issuing the new
20 regs in SER. Caudle and Vic have to do ---

21 MR. GRIMES: Issuing the SER as a new reg.

22 MR. SEBROSKY: I'm sorry, issuing the new reg as
23 an SER. Sorry. Anyway, Caudle and Vic have to do the final
24 inspection and get the Region 2 administrator letter. The
25 schedule was to forward the Commission paper with the staff

1 recommendation by April 14th, then it is in the Commission's
2 hands.

3 MR. GILL: The engage schedules are presumptive.
4 We presume that the ACRS will write a favorable letter. We
5 presume that the follow-up inspection won't identify any
6 issues that can't be readily resolved. And we presume that
7 we will work out the details of a renewed license to present
8 to the Commission in order to meet those milestones. But,
9 we've been able to fulfill that kind of schedule on Calvert
10 Cliffs, and I have a recommendation pending before the
11 Commission that they are going to discuss on March the 3rd.
12 That's why we asked you to move the full committee
13 discussion of Oconee to March the 2nd. So, we are playing
14 both end games in parallel and we'd expect to follow this
15 same pattern for Oconee.

16 That ends my presentation, unless there are any
17 questions.

18 DR. POWERS: I'm wondering how comfortable we are
19 with all of this, this rush to completion.

20 CHAIRMAN BONACA: I'm sorry?

21 DR. POWERS: How comfortable are we going to be,
22 how comfortable is the full committee going to be with this
23 rush to conclusion.

24 CHAIRMAN BONACA: Well, I mean, I think we would
25 like to have a discussion now of the sub-committee and talk

1 about also that issue there. And then my sense is that at
2 the end of the discussion we will then define for the staff
3 and for Duke what we would like to hear next week. So, why
4 don't we just start and go around the table and see what
5 general perspective there are, and comments regarding what
6 we heard in the past couple of days and the closure of open
7 items in the SER, and where we are right now as far as
8 having our meeting next week and where we think we are going
9 to be with the committee.

10 Why don't we go around the table and see if there
11 are any specific comments. We'll start with you, Bill.

12 DR. SHACK: No, I don't have any particular
13 problems. The big open issue that we sort of had was the
14 reactor vessel internals. It seems to me they've addressed
15 that with a fairly comprehensive program. You don't have
16 all the answers, but, obviously, if you are inspecting you
17 will identify problems and can address those. And if you
18 can make some of those go away by analysis after further
19 research, that's fine. So, updating that.

20 The questions on scoping I thought were reasonably
21 well addressed by the discussions we had yesterday and
22 today. So, I don't see any real show-stoppers here from my
23 point of view.

24 CHAIRMAN BONACA: Tom, your feelings?

25 DR. KRESS: I agree with Bill. I don't see any

1 real show-stoppers either. I think they did an excellent
2 job of addressing the scoping question. I just wonder how
3 that will play out on the next review. I think we need to
4 look into how we are going to review the scoping issue for
5 the other plants.

6 But the items I had on my list to review for open
7 items, I think the resolution and the closure was very
8 appropriate and acceptable.

9 CHAIRMAN BONACA: Bob?

10 DR. SEALE: I was certainly impressed with the
11 thoroughness, and really the enthusiasm with which the
12 applicant has plowed new ground here. I guess the old story
13 is that only the lead dog gets to see the change in scenery.
14 And, certainly, you are seeing a lot of change in scenery as
15 you go through and do this analysis.

16 I have one concern that just struck me that as you
17 went through you in some cases referred to some rather
18 vintage analysis, even things that were done before TMI.
19 And I wonder if those vintages are perhaps all they are
20 cracked up to be. Are there things that have been learned
21 since then. Clearly there has been a very extensive amount
22 of engineering work addressing some of the issues in the TMI
23 realm that might cause one to ask whether or not those
24 conclusions were completely true. And I guess, Chris, I
25 guess that is something your guys want to take a look at.

1 MR. GRIMES: Actually, I'll address that by saying
2 that as we present the results of these license renewal
3 findings, we emphasis that the underlying principals for
4 license renewal; the first of which is reliance and the
5 regulatory process to maintain plant safety. Wherever there
6 were lessons learned over time regarding whether the Three
7 Mile Island lessons learned, or other specific events, the
8 regulatory process has identified bulletins, generic
9 letters, and other actions by which vintage analysis, or
10 vintage designs are back fit to more modern standards. We
11 may have learned some lessons that we conclude did not
12 warrant backfitting, but that does not necessarily mean that
13 the utility has not taken that experience and reflected that
14 in their vintage analysis. We rely on them to do, to
15 reflect on those things and go above and beyond with the
16 backfitting requirements. So that reliance and the process
17 gives us the confidence that whatever vintage features
18 needed to be upgraded, have been upgraded.

19 CHAIRMAN BONACA: Mr. Uhrig?

20 MR. UHRIG: I, too, am impressed with what I've
21 seen the last day and a half. My major concern had to do
22 with the cable aging, and I think that was very
23 appropriately addressed yesterday, and summarized here again
24 this morning. I don't have any reservations on that.

25 The one surprise that came out this morning is the

1 lack of cathodic protection. But, again, it is not an issue
2 as far as license renewal is concerned. I'm just surprised.
3 I had understood this was always pretty much standard
4 procedure, but it is not an issue as far as the relicensing
5 is concerned. Thank you.

6 CHAIRMAN BONACA: Dr. Powers?

7 DR. POWERS: I'd like to first just comment on
8 absence of cathodic protection. I think there are probably
9 more instances in this world over cathodic protection than
10 cathodic trouble, whereas it is protected, there are some
11 serious problems with ground loops and things like that.
12 But it can occur on a complicated site. So, the fact that
13 there is no cathodic protection doesn't bother me very much.
14 I work with some sites where it is just a nightmare trying
15 to cathodically protect things.

16 I think it is important that we be able to
17 write a letter that is fairly parallel to the one that we
18 wrote on Calvert Cliffs. So it is important to make sure we
19 have the information that can do that. Now, clearly, there
20 are sites specific, but we ought to have a certain
21 parallelism to the extent if we can. On the other hand, we
22 do have to recognize that we are talking about methodology
23 and setting a pattern that is going to be adopted in the
24 future.

25 So, I don't think we should hesitate to comment on

1 methodological issues in the sense that they've been proven
2 out here at Oconee.

3 DR. KRESS: Do you see the scoping methodology
4 they use as being generally applicable to other plants?
5 That was the concern I had.

6 DR. POWERS: I think that I would take from their
7 scoping methodology, if I were a different plant, to be, the
8 lesson learned there is to be imaginative in your approach
9 on scope rather than trying to follow somebody else's line
10 of script. That's the take home lesson I would get from
11 that.

12 There is a question in my mind on how much we want
13 to speak to the technical issues of information to the
14 Commission, and particular on the, what I would say betting
15 on the aspects of this, since we've gotten explicit
16 questions from the Commission on the issue of one-time
17 inspections. I'm wondering if in our presentation for the
18 full Committee it might not be valuable to have a little
19 more discussion of philosophy on that one-time inspection.
20 Why do they think that this is a good way to look at
21 something. How can you set the time frame for when it would
22 be useful to do and when it is not useful to do.

23 CHAIRMAN BONACA: Yeah. And it is not set by the
24 program.

25 DR. POWERS: Just because it is clear that is a

1 question that is on the mind of the Commission. Enough for
2 them to write us and ask us a question about it.

3 DR. KRESS: Well, their basis that they used was,
4 I thought it was strictly pragmatic; how can we fit it into
5 the remaining shutdowns we are going to have between now and
6 the end of the original license.

7 DR. POWERS: I think there is nothing wrong with
8 that, and I'm not objecting to it. I'm trying to understand
9 why ---

10 DR. KRESS: Understand why that's good enough?

11 DR. POWERS: Why that is good enough, yeah.

12 DR. SEALE: And what the circumstances might be
13 under which one inspection wouldn't be adequate.

14 DR. POWERS: That's right, because there is, one
15 of the things that is going to happen is you are going to
16 set a precedent here, and you may well have to find, come up
17 on occasion where you have to undue that precedent. And so
18 you want to make sure that precedent is cast in the right
19 light, so that somebody can't come back and say, "hey, you
20 let these guys do this and I want to do the same thing," or
21 it is almost the same thing, and now you are not letting me
22 do this.

23 CHAIRMAN BONACA: And the other thing is that
24 clearly we understood the philosophy of the NRC in accepting
25 one-time inspection as a confirmatory inspection that in

1 effect is not occurring. That in of itself has a logic
2 behind it that says you should wait and allow for time to
3 give yourself time to make sure that you give it time to
4 this improbably effect to manifest itself.

5 And so, then we had some communication that says,
6 well, you know, there should be no restriction when you do
7 it. Well, you have twenty years behind you. It doesn't
8 make all sense. I think it would be good to have that
9 discussion with the staff planned for next week.

10 DR. KRESS: Well, my concern with that, Mario, is
11 that I'm afraid it is an unanswerable question.

12 DR. POWERS: And I think that is an acceptable
13 response from the staff.

14 CHAIRMAN BONACA: That's fine. Sure. Okay.

15 DR. POWERS: I think you, if the staff came in and
16 said, "Look, here is what we are trying to accomplish." You
17 are trying to respond to a negative hypothesis. You are
18 doomed to failure here.

19 DR. KRESS: Yeah. You are doomed to failure,
20 yeah.

21 DR. POWERS: So you are looking for plausibility,
22 and that's

23 all we've sought is plausibility here, and a
24 program that has these characteristics to us is plausible
25 and the ones that have these characteristics is implausible

1 to us, I think that is an acceptable answer, because that is
2 pretty much the answer we've given the Commission on that,
3 this plausibility document.

4 CHAIRMAN BONACA: We never gave a communication we
5 expect to establish a criteria, but we said that this seems
6 appropriate to the extent possible that you would delay as
7 much as you can. They go in cycle. And that's why, I mean,
8 I think it is important we understand why not, or there is a
9 different criteria. One is, you know, can you perform a
10 one-time inspection when your license the new plant. He
11 says that he can do that. So, that's an issue we should
12 hear about.

13 DR. POWERS: I think it's that I personally would
14 like to see, understand a little better, the technical
15 underpinning for the decisions on the sampling of piping for
16 the ground corrosion.

17 CHAIRMAN BONACA: Yes.

18 DR. POWERS: I don't know that it is wrong.

19 CHAIRMAN BONACA: No. But to hear the criteria

20 ---

21 DR. POWERS: In other words, a little more details
22 on this so that I would be in a position to defend it, as
23 well as the staff.

24 CHAIRMAN BONACA: Okay, Mr. Sieber?

25 Mr. Sieber: As you know, I'm recused from voting

1 on the application with Duke Energy. On the other hand, I'm
2 not recused from assisting the committee in making its
3 investigation, reviewing the items that were assigned to me,
4 and commenting on those. I have done all of those. Along
5 with Dr. Uhrig, I was assigned to look at the electrical
6 issues here. But there are other items that I was
7 particularly interested in. As a general conclusion I
8 believe that there is nothing that bothers me to any
9 significant extent that would prevent the issuance of an
10 extended license. I would point out that in my discussions
11 with individual Duke employees, they were very forthright
12 and honest, and very willing to tell me everything that I
13 asked them, or volunteer information straight from the
14 shoulder, and I think that that's a prime and essential
15 ingredient to being able to maintain a safe plant. But I
16 got that impression while I was here and I would encourage
17 them to foster that amongst all the people that are involved
18 with Oconee.

19 CHAIRMAN BONACA: Thank you. In my impressions --
20 first of all, I would like to just make some comments
21 regarding the interim SER as we received it, and the final
22 SER. There are some big differences in my mind, and that's
23 mostly for the issues we sought. Scoping. I think that the
24 extended review by the staff was important in my mind
25 because it gave us further assurance that in a pretty cloudy

1 definition, as we have for an older plant like Oconee, they
2 have gone the extra mile to verify that there are components
3 out of scope. I think that by looking at a number of
4 additional, particularly the high energy line break, which
5 really spans the whole gamut of the plant. When you cover
6 that and you find no additional components, that gives a
7 good feeling that really you have covered the scope issue
8 reasonably well, or well.

9 The reason the reactor, RVI-AMP, which is Reactor
10 Vessel Internal Aging Management Program, I think is a
11 significant commitment. And I think that -- you know, so
12 many of the issues we had regarding fatigue, regarding
13 swelling, is really captured by that program. I really like
14 to see that program is so tied in with the initiatives of
15 the industry to aggressively go after these issues because
16 the industry has not addressed those issues. So that is
17 really their -- it has to be that leadership.

18 Also, I was satisfied about the closure on the
19 issue of attendance, because that is a program where
20 inspections, you know, you are not relying any more on those
21 that, you know, we had other questions on when we met for
22 the interim review.

23 Also, the cables. What I appreciated the most was
24 the initiative of the plant to go out and look at locations
25 and take pictures and be candidate with us, and that we

1 could see and then to respond. It means that they intend to
2 take care of it.

3 I was impressed by the physical conditions of the
4 plant. Most of all, by the fact that I didn't see a
5 difference between the components which are going to be
6 aging and those which are not, which it is telling me that
7 there is a tendency to look at all components and take care
8 of that.

9 One statement though, I'd like to make, has to do
10 with more an impression, the reliance on established CLB.
11 That is part of the rule. But my feeling is always that
12 there is a rule and then there is we want to run a safe
13 plant anyway. And so I, and I'm not saying that Oconee
14 would not in fact look outside of the rule, but you --
15 particularly when the CLB is very old, you have to be alert
16 to all components that you know by other means or any means
17 that are important to safety. There will be some that you
18 didn't capture in that CLB, and some that you captured, for
19 example. And, so, I know that we have discussed this with
20 the staff, these questions that got raised, and I believe
21 again that the scope is adequate, but I think it is
22 important that we all always recognize that, you know, we
23 know as much as we, you know, our tools give us to know.

24 DR. KRESS: Mario, do you think the addition of
25 the additional events to look at following this Chapter 15

1 is almost like doing a PRA? If you add enough of the events
2 in ---

3 CHAIRMAN BONACA: Let me give you a feeling for
4 what -- let me just give you -- I mean, this is a high
5 energy line break analysis done most likely in the early
6 70's. I heard 1973. You know, there were computer codes
7 used at that time. You don't even recognize it was for
8 heat, but you blow super heat inside certain rooms at times
9 and you get significant effects. And, so, you know, as in a
10 PRA, what you know is as good as the methods you use. And,
11 so, and there is nothing wrong with the licensing base of
12 older plants, but the fact is, you know, they are more
13 limited and we have to recognize that. Now, that is really
14 what I meant.

15 DR. KRESS: All right. I was encouraged that the
16 staff was able to add additional, what I would call design
17 basis events, into this.

18 CHAIRMAN BONACA: Yes.

19 DR. KRESS: Because I think that sets a bit of a
20 precedence that even though we can't see how to work the
21 PRA, and that precedence to me does give a way to make sure
22 the scope does cover all safety significant to the
23 components of the system. That was encouraging to me.

24 CHAIRMAN BONACA: Yeah. And to me, too. It was
25 significant, you know, cross verification of scope. And I

1 agree with Dr. Powers that we should hear something about
2 one-time inspection, the initiative as being somewhat
3 belabored. Again, the perspective of the committee is not
4 one that we should impose any requirement as being done the
5 last day, but one that says it is prudent to do it. Later
6 and earlier because you want to keep a chance for this
7 effectively.

8 DR. KRESS: I realize there is pragmatic and
9 practical consideration there. It takes so long to do an
10 inspection. You can't do it all at once, even though it is
11 a one-time inspection, and it ought to be spread out over
12 time. My thought there is that I think there is a need to
13 prioritize. Which ones do you do first and which ones do
14 you do last, and not worry too much about the timing, but
15 the order in which you do it. I haven't seen much
16 discussion on that.

17 DR. POWERS: I think what you are looking for is
18 some language, some thought on a question of detectability
19 and sizing. Clearly, you want to inspect for those things
20 that are most easily manifested and most easily detected,
21 most easily sized earliest. And the most difficult latest.
22 And in that, that maybe all the guidance you can offer.

23 DR. KRESS: I haven't seen any guidance.

24 DR. SEALE: Well, in this case, in this case, too,
25 there is going to be the additional attraction, if you

1 will, and advantage perhaps of having an extended outage or
2 two having to do with steam generator replacement that is
3 going to sort of open the plant up for perhaps more detailed
4 examination of some things than others. It would be a shame
5 to not be sure that the tough ones that needed time to do,
6 or to gain access to, were ignored when that opportunity
7 arose. But you can't count on that every time. Not
8 everybody is going to do that, but serendipity does come up
9 and bite you every once in awhile.

10 CHAIRMAN BONACA: My thoughts on what to put in
11 the letter. I agree with some of the comments that Dr.
12 Powers made in the beginning, but as we, I would like to use
13 the same format we used for Calvert Cliffs. I would like to
14 highlight in that letter some of the problems which have
15 been instituted in this list of open items, which I
16 mentioned before. We were very significant, I mean, the
17 reactor vessel programs, the containment commitments, and
18 the cable problems. I would like to address the closure of
19 GSI-190. I think that is important because this comes right
20 after we close another genetic basis and we have a licensee
21 who has responded and has essentially committed to certain
22 specific inspections to deal with additional concerns that
23 really, they could take our position on that and say, "Well,
24 we are not going to do it because GSI-190 is closed." So I
25 think that was something I wanted to identify in the letter.

1 I would like to put something regarding one-time inspection
2 just to clarify the committee perspective on that. We may
3 have been misunderstood in the past, or they may have
4 believed that we were trying to impose some kind of specific
5 requirements, which we never intended to.

6 Dana, you mentioned before the importance of
7 communicating some of the methodology that the staff is
8 using to accept closure of open items, and said to me the
9 one of corrosion of carbon steel pipes. It is a good
10 example. And, so, we will ask the staff to give us, you
11 know, a very brief summary of the logic as they go through
12 that we heard today verbally, and I would like to further
13 summarize that just for information for the Commissioners.
14 That was pretty much, I mean, there may be additional items
15 that seem to be important enough for them to put in the
16 letter for comment anyway, for your review. But that would
17 be the bulk of where I would like to go. And I will
18 hopefully have a firm draft for you before we travel to
19 Washington so that you can take a look at it, because we
20 have a very short time table.

21 DR. KRESS: Well, once again, I was impressed with
22 the depth and comprehension of the staff's review. That
23 gives you a lot of comfort to know they do a really good job
24 on this.

25 CHAIRMAN BONACA: Yeah, likewise. I was very

1 impressed with their work. I was very impressed with
2 Oconee. Unfortunately, and I say unfortunately, it gives us
3 a benchmark as we did for Calvert Cliffs, and sets up
4 expectations at least on our part for the next applications,
5 and we hear about people coming in groves and groups and
6 lumping together. We will have to really be watchful of the
7 process that Oconee is going through to identify components
8 of established programs. We will be with them for a long
9 time, because they are taking the time to look at it,
10 inspect it, and hopefully as well will happen on the next
11 applications.

12 We have identified a couple of things I would like
13 to hear for a full committee meeting, and it seems to me
14 that from Oconee, from Duke, we would like to hear about the
15 three items represented today, which is scoping, cables and
16 the Reactor Vessel Internal Aging Management Program. Any
17 other items you would like to hear from Duke?

18 DR. KRESS: Well, their plans for the one-time
19 inspection.

20 DR. SEALE: Yeah.

21 CHAIRMAN BONACA: Okay. Plans for the one-time
22 inspection, and maybe just some basic information regarding
23 their embedded pipes corrosion inspection so we can
24 understand that philosophy.

25 And on the part of the staff, we need to hear

1 pretty much the summary of closure of open items with -- I
2 will expect special focus on the three areas that are being
3 presenting by Ocone, which is scoping, cables and reactor
4 vessel internal. Also, explaining their philosophy and
5 accepting some of, you know, the approach for example on the
6 corrosion of embedded piping.

7 And they heard us today talking about one-time
8 inspections, so if there is any additional information that,
9 or other perspectives that you are to give us, that would be
10 the place for us to receive them so we can possibly address
11 them in the letter.

12 MR. GRIMES: Dr. Bonaca?

13 CHAIRMAN BONACA: Yes.

14 MR. GRIMES: Just so that I make sure we are
15 clear, Duke is going to make a presentation of the full
16 committee that is going to describe scoping, cables, reactor
17 vessel internals, their one-time inspections, and the buried
18 piping?

19 CHAIRMAN BONACA: Yes.

20 MR. GRIMES: And the NRC staff is going to provide
21 a summary of the closure of open items, and will
22 specifically emphasize -- I'm going to start first with the
23 reliance on the CLB and the regulatory process in terms of
24 what the scope or renewal is. One-time inspections, both
25 philosophically and in terms of what our expectations are,

1 and then how we do them in the change to the licensing
2 basis. And then the buried piping issue, in terms of the
3 illustration of the

4 staff's approach to evaluating aging management
5 programs. Is that correct?

6 CHAIRMAN BONACA: Correct.

7 MR. GRIMES: Thank you.

8 CHAIRMAN BONACA: Okay. Do we have any other
9 comments? Any comments from the public?

10 MR. TUCKER: My name is Mike Tucker. I'm
11 Executive Vice-President for Duke. I rarely miss the
12 opportunity to get up in front of a microphone. I would
13 just like to thank the staff very much for the work that you
14 have done in reviewing the Oconee application. I think you
15 are correct, the NRC staff has done a very rigorous review
16 of this topic, and our staff has certainly put a lot of
17 effort into it. Doctor Seale, we very much appreciate your
18 view that the view is only different as a lead. This team
19 has done a good job and we look very much forward to the
20 review next Thursday, I guess, with the full Committee
21 moving on this project, so we have an opportunity to bring
22 some more to you in the future.

23 CHAIRMAN BONACA: Thank you. If there are no
24 other comments, we will ---

25 DR. SEALE: We do need to get to visit plants a

1 little more often.

2 CHAIRMAN BONACA: I agree.

3 DR. SEALE: I think you learn a lot.

4 DR. POWERS: We've got one coming in June.

5 DR. SEALE: I know.

6 DR. POWERS: I would personally like to thank the
7 Ocone staff for the hospitality and the fine tour we had.

8 CHAIRMAN BONACA: And for the lunch that was
9 delicious, I must say, and plentiful, too. Okay, so with
10 that I think we can adjourn the meeting. The meeting is
11 adjourned.

12 [Whereupon, at 11:15 a.m the meeting was
13 concluded.]

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REPORTER'S CERTIFICATE

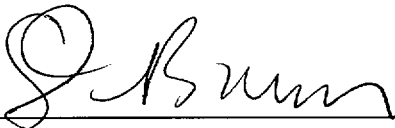
This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission in the matter of:

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CASE NUMBER:

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D. Brown

Official Reporter

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