

NUCLEAR REGULATORY COMMISSION

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500th Meeting

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

500TH MEETING

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THURSDAY,

MARCH 6, 2003

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ROCKVILLE, MARYLAND

The Committee met at 8:30 a.m. in Room T2B3,
Two White Flint North, Rockville, Maryland, Stephen L.
Rosen, Chairman, presiding.

ACRS MEMBERS PRESENT:

- MARIO V. BONACA Chairman
- GEORGE APOSTOLAKIS Member
- F. PETER FORD Member
- THOMAS S. KRESS Member
- GRAHAM M. LEITCH Member
- DANA A. POWERS Member
- VICTOR H. RANSOM Member
- STEPHEN L. ROSEN Member-at-large
- WILLIAM J. SHACK Member
- JOHN D. SIEBER Member
- GRAHAM B. WALLIS Member

1 NRC STAFF PRESENT:
2 SHER BADAHUR Designated Federal Official,
3 AM Session
4 MAGGALEANA WESTON Designated Federal Official,
5 PM Session
6 JOHN T. LARKINS Executive Director, ACRS/ACNW
7 SAM DURAISWAMY Technical Assistant, ACRS/ACNW
8 HOWARD J. LARSON Special Assistant, ACRS/ACNW
9 CHRISTINA ANTONESCU NRR
10 STEVEN ARNDT NRC/RES/DET
11 BILL BATEMAN NRR/DE/EMCB
12 BRUCE BOGER NRR/DIPM
13 CYNTHIA CARPENTER NRR/DIPM/IIPB
14 BARRY ELLIOT NRR/DE/EMCB
15 RONALD FRAHM NRR/DIPM/IIPB
16 FRANK GILLESPIE
17 PETER KOLTAY NRR/DIPM/IIPB
18 P.T. KUO NRR/DRIP/RLEP
19 TONY McMURTRIE NRC/Peach Bottom SRI
20 MARK SATORIOUS NRR/DIPM/IIPB
21 DAVID SOLORIO NRR/DRIP
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P-R-O-C-E-E-D-I-N-G-S

(8:33 a.m.)

CHAIRMAN BONACA: The meeting will now come to order. This is the first day of the 550th Meeting of the Advisory Committee on Reactor Safeguards. During today's meeting, the Committee will consider the following, Peach Bottom License Renewal Application, Reactor Oversight Process, Vessel Head Penetration Cracking and Vessel Head Degradation, Draft of Final Revision I to Regulatory Guide 1.180, DG 1119, Guidelines for Evaluating Electromagnetic and Radio Frequency Interference in Safety-Related Instrumentation and Control Systems, and finally, Proposed ACRS Reports.

This meeting is being conducted in accordance with the provisions of the Federal Advisory Committee Act. Dr. Sher Badahur is the Designated Federal Official for the initial portion of the meeting. We have received no written comments or requests for time to make oral statements from Members of the Public regarding today's sessions. A transcript of the meeting is being kept, and it is requested that the speakers use one of the microphones, identify themselves and speak with sufficient clarity and volume so that they can be

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1 readily heard.

2 I will begin with some items of current
3 interest. First of all, as you may have noticed, this
4 is the 500th Meeting of ACRS, and we had a celebration
5 over the past two days for this historic event, where
6 we had also many of the former members coming and
7 participating with us in panel discussions. The
8 meeting and celebration held on March 4th and 5th were
9 very successful.

10 I would like to thank the ACRS Staff,
11 especially the Operation Support Branch Staff, and
12 specifically Jenny Gallo, Sherry Midder, Michelle
13 Kelton, Barbara Jo White, Ethel Barnard, Theron Brown
14 and Tanya Winfrey, who were instrumental in organizing
15 and contributing to the success of this event. Also,
16 I would like to thank the Members and all meeting
17 participants for the success of this historic event.
18 I would like to see if Jenny Gallo is here. Well, I
19 think you should stand up. Well, I want to thank you
20 because everything went very well, and without a
21 glitch and that was pretty remarkable.

22 I would like to start with some items of
23 current interest. You have in front of you items of
24 interest, and I can point to the first item there
25 where it's mentioned that Chairman Merserve was

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1 elected to National Academy of Engineering Membership
2 on February 14th, 2003. We want to congratulate
3 Chairman Merserve for the election to the membership.
4 There are also a number of interesting letters and
5 speeches in this document.

6 Now we can turn to our agenda. The first
7 item on the agenda is going to be a Peach Bottom
8 License Renewal Application, and Mr. Graham Leitch is
9 going to lead us through that presentation. Thank
10 you.

11 MEMBER LEITCH: Thank you, Dr. Bonaca.
12 You recall that on October 30th we had a Subcommittee
13 Meeting concerning the Peach Bottom License Renewal
14 Application. At that time, we reviewed the SER with
15 some open items and confirmatory items. At our
16 November Full Committee Meeting, I gave a verbal
17 summary. We concluded that there was no interim
18 letter necessary at that time, and I gave a verbal
19 summary at our November Full Committee Meeting, a
20 summary of the results of that Subcommittee Meeting.

21 In the meantime, the Staff has worked with
22 the Applicant, and on February 5th, they issued the
23 final SER with the open items and confirmatory items
24 all in a closed status, so we're going to hear
25 presentations from both the Staff and the Applicant

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1 regarding those items today.

2 Also of note is that on December 20th of
3 2002, there was a scram at Peach Bottom with some
4 complications, and we're going to hear later in the
5 presentation a discussion of that scram, and
6 particularly with a focus on whether it has anything
7 to say about the license renewal process, the aging
8 management of passive systems, so we want to hear the
9 normal presentation, and try to compress that
10 discussion of the scram which I know is of interest,
11 but yet we want to try to compress that into the last
12 15 minutes or so of the presentation so that we can
13 maintain the schedule. So with those opening remarks,
14 I'd like to turn the discussion over to P.T. Kuo.

15 MR. KUO: Yes, sir. Good morning. Thank
16 you, Dr. Leitch. I'm P.T. Kuo, the Program Director
17 for License Renewal Environmental Impacts Program.
18 The Project Manager for the Safety Evaluation of this
19 project is Mr. David Solorio, to my right. He will be
20 leading the Staffer presentation today. We have also
21 invited our senior residents at Peach Bottom, Mr. Tony
22 McMurtrie, to my left. He and Mr. Solorio will be
23 giving you a brief summary of the event occurred at
24 Peach Bottom on December 21st, 2002. They will not go
25 into the details of event, but they will present to

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1 the Committee the brief scenario of the event, the
2 potential impact on license renewal, and preliminary
3 findings.

4 We also have the technical support from
5 Tech Staff. Most of the key reviewers are sitting in
6 the audience. They are ready to answer any questions
7 the Committee may have. I have also requested the
8 presence of our Deputy Division Director, Division of
9 Regulatory Improvement Programs, Mr. Frank Gillespie.
10 He will be here later on to answer any questions the
11 Committee may have on the broader aspect of the issues
12 dealing with the current events, and the relationship
13 with the license renewal review. At that time, I
14 believe Mr. Gillespie will be able to answer any
15 questions in terms of the office process, and what we
16 are doing right now.

17 In terms of the application, Mr. Solorio
18 will brief the Committee on the resolution of the 15
19 open items that we briefed the Subcommittee last time.
20 We have since resolved all the open items, and Mr.
21 Solorio will give the Committee a brief summary of
22 some of these issues, and plus other issues of
23 interest to the Committee.

24 In terms of the commitment list, Exelon
25 has submitted a Committee list in their FSAR

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1 Supplement, and the Staff has reviewed and verified,
2 and also included this list in our SER. And this list
3 will also be included in our post license renewal
4 inspection procedure, 7/1/003.

5 With that, I would like to turn over the
6 briefing first to Exelon, and then followed by the
7 Staff presentation. Exelon.

8 MR. BOHLKE: Dr. Bonaca, Members of the
9 ACRS, good morning. My name is Bill Bohlke. I'm the
10 Senior Vice President for Nuclear Services of Exelon
11 Corporation. I'm pleased to be here this morning.
12 I'd like to introduce on my left Mr. Fred Polaski.
13 Fred is the Corporate Manager responsible for license
14 renewal, and has been involved in the daily activities
15 since the inception of the Peach Bottom License
16 Renewal Project. And to his left is Mr. Eric Patel,
17 who is the Project Lead for that project. To my right
18 is Gary Stathes. Gary is the Station Engineering
19 Director for Peach Bottom. Gary and I will address
20 the issues of interest regarding the December 20th
21 scam here in a presentation.

22 Before we go on, I'd like to take the
23 opportunity to tell you how honored we are to be part
24 of the 500th ACRS Meeting. I think you are due all
25 the congratulations that you receive, and all the

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1 compliments that you receive. Obviously, the ACRS
2 would not have endured as long as it has had it not
3 been consistently providing valuable insights and
4 challenges to the industry to force us to look
5 internally more aggressively than perhaps we might
6 have on our own, so again, thank you for that.

7 At this time, I'll turn it over to Fred
8 for the presentation. Thank you.

9 MR. POLASKI: Good morning. This is Fred
10 Polaski with Exelon, and I believe you should all have
11 a handout of the presentation. We're going to talk
12 about the Peach Bottom Licensure Application today.
13 The second slide is a picture of Peach Bottom, and I
14 won't go over it in detail, but that's the plant that,
15 you know, on the Susquehanna River. If there was any
16 -- we had some discussion last time about how the flow
17 goes in and out of the plant, and the water flow and
18 that stuff. If there's any questions on that, I can
19 explain that from a picture if anybody would like to
20 go through that.

21 MEMBER POWERS: Please.

22 MR. POLASKI: Okay. In this view, you're
23 looking from the north towards the south. Out here is
24 the Susquehanna River flowing from north to south.
25 The intake structure is right here. This is the outer

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1 screen structure. You get two intake canals, one for
2 Peach Bottom 3, one for Peach Bottom Unit 2 going into
3 the plant. This is the inner screen structure, the
4 pump house. This outer screen structure, the inner
5 screen structure, non-safety related. The pump house,
6 the center part of that is safety-related which we
7 discussed last time.

8 From there, cooling water goes in pipe
9 underneath the ground underneath the administration
10 building into the plant. This is your turbine
11 building, Unit 2 on the south end, Unit 3 on the north
12 end, two reactor buildings, Unit 2 and Unit 3.
13 Discharge from the plant then comes out in this area
14 into this cooling pond area here, and then down
15 underneath this bridge, down through this discharge
16 canal for about a mile, where it finally discharges
17 back into the Susquehanna River.

18 This is an old picture that shows five
19 cooling towers. The original design was three, we
20 then later added two. The last two have since been
21 removed. There have been studies done, and the
22 cooling towers are -- there's only three left.
23 They're only used in very extreme situations when
24 there's very low flow in the river and very high
25 temperatures, so the normal cooling flow path is

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1 through this canal, through the pumps, into the plant,
2 back out and then down that way.

3 One other structure we talked about last
4 time was the emergency cooling tower. This is the
5 emergency cooling tower right here. All the piping
6 for that is underground, and water in here can
7 actually feed down underwater pipe, underground pipes
8 into the pump structure isolated at that time from the
9 river, because you would lose the whole river. And
10 then that circulates water through the plant, back to
11 the cooling tower and then closed loop cooling.

12 MEMBER POWERS: I take it the river flows
13 from top to bottom in that picture?

14 MR. POLASKI: No. It flows here on the
15 north flowing south. Okay?

16 MEMBER POWERS: Okay.

17 MEMBER LEITCH: Fred, just while you're on
18 that picture, could you point out, you know --

19 MR. POLASKI: Okay. That's the
20 containment for Unit 1, which was the prototype high
21 temperature gas cooled reactor. The other structures
22 around that, a lot of the office building and turbine
23 building has been restructured into a training
24 facility. The simulator is in that building, and
25 there's no connection between Unit 1 and Unit 2 and 3

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1 at all. They're totally -- no common water systems,
2 air systems, nothing.

3 I guess the other thing, there's two --
4 the transmission lines coming out of the plant. This
5 is the south substation up on top of the hill where
6 the Unit 2 goes out to. The north substation is in
7 this area up here where Unit 3 transmission lines go
8 to, so we've got two separate substations, one for
9 each plant.

10 MEMBER SHACK: Where would the high flood
11 line for the river be?

12 MR. POLASKI: The high flood line is
13 actually at elevation 116, which is the elevation of
14 this parking lot and all of this area right here. At
15 this point, the Conowingo Pond is several miles wide,
16 and the most extreme problem we ever had was I believe
17 in 1972, Hurricane Agnes. It came up through -- it
18 came up the coast, turned up through the Chesapeake
19 Bay, right up the Susquehanna River, went up into New
20 York State, turned around and came back and sat there
21 and dumped a lot of water. We had close to a million
22 cubic feet per second flow through the river at that
23 time. Now Peach Bottom 2 and 3 weren't started up
24 yet, and I think the elevation got to about 115 and a
25 half, because I was there. I was working on Unit 1,

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1 and we were sandbagging Unit 2 and 3 in case we had a
2 flood on site, but did not. So that's essentially the
3 design for flooding, and we didn't get any water into
4 the plant.

5 MEMBER ROSEN: Fred, what are those other
6 buildings alongside the pond?

7 MR. POLASKI: This one?

8 MEMBER ROSEN: Yes, and the one next to
9 it.

10 MR. POLASKI: This is a site management
11 building, this is offices, and this is the building
12 maintenance shop for things like people that fix,
13 maintain the buildings, and plow the snow and that
14 kind of stuff. The regular maintenance shops are in
15 this building here. This is the administration
16 building, inside security where your maintenance shops
17 are for people that do repair on the plant.

18 MEMBER ROSEN: So those first two
19 buildings you described would be flooded during this.

20 MR. POLASKI: No, they wouldn't because --
21 well, the worst condition we had during Agnes, we did
22 not get water up in this parking lot. This is a 116
23 elevation. It got to about 115 and a half, 115.9
24 inches, something like that. And that was, you know,
25 probably design condition. It couldn't have gotten any

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1 worse, because Conowingo Dam south of that was -- had
2 all of its flood gates up downstream of that, and
3 towns got flooded with ten feet of water, and we
4 didn't get any water on site.

5 MEMBER ROSEN: Thank you.

6 MR. POLASKI: If you'd go on the next
7 slide. Peach Bottom Unit 2 and 3 are General Electric
8 BWR4s, both with Mark I containment. Total net
9 generating capacity is about 2,340. We've gone
10 through power uprates at Peach Bottom 1, a 5 percent
11 uprate, and then most recently I guess one and a half
12 percent feedwater flow increase. The initial licenses
13 expire in 2013 and 2014.

14 On to slide 4. What we'd like to talk
15 about today is briefly the background of the
16 application, and then a look ahead post receipt of the
17 new license, and what's going to be happening with
18 respect to licensure, and after we get the new
19 license.

20 Background, July, 2001 we submitted the
21 application. In December of 2002, the NRC issued
22 their Supplemental Environmental Impact Statement. In
23 February this year, the Safety Evaluation Report was
24 issued without any open items. And also in February,
25 Region 1 Administrator issued his letter recommending

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1 the new license for Peach Bottom.

2 Taking a look at what's going to happen in
3 the future, the UFSAR Supplement, which includes the
4 summary descriptions of our Aging Management Programs
5 will be implemented in the next update of the FSAR.
6 That will be in April, 2005. We update every two
7 years, and that's the next one that's scheduled, so
8 the supplement will be included in that one.

9 All the Aging Management commitments that
10 we've made that are defined in the UFSAR Supplement
11 will be completed and implemented. Many of them are
12 already done now, some of them we still have to do in
13 the future, and I'll talk about those in some more
14 detail. And as we go forward for the next 30 years,
15 we have established or we are establishing a process
16 so that any plant changes will be evaluated to make
17 sure that the commitments that we made as part of
18 license renewal are maintained.

19 MEMBER WALLIS: Are you in line for an
20 extended power uprate?

21 MR. PATEL: We are (off mic.) Peach
22 Bottom.

23 MEMBER WALLIS: You are not.

24 MR. POLASKI: As far as implementing
25 commitments, and I'm going to talk through this, and

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1 then I've got about five or six slides to show you
2 specifics. But all commitments are documented in
3 Exelon's Commitment Tracking System, so every
4 commitment we've made as part of the licensure
5 application is documented in our system.

6 Each Aging Management activity, and that's
7 the term we use in the application. Other people use
8 the term "Aging Management Program", and that runs the
9 gamut from what we call big P Programs like ISI, in
10 fact, which are very clearly defined, what we call
11 little P Programs, which you don't find a program in
12 the plant but we've described it as a program, like
13 diesel fuel oil and lube oil monitoring program, which
14 consists of a lot of smaller activities that we have
15 grouped together as a program. Each of those has
16 assigned a commitment tracking number in a commitment
17 tracking system.

18 Our implementing procedures have been
19 annotated for all the ongoing commitments so there's
20 a clear traceability from procedures back to the
21 commitment tracking item. And future actions that
22 have been identified, and these are the ones that
23 exist in the list we provided to the NRC and is being
24 issued as Appendix D, I believe it is, to the FSAR or
25 the SER when it gets issued as a NUREG. Some of those

1 have a future action for implementation in the future,
2 and I'll go through an example of that.

3 MEMBER FORD: It's one thing to be sure
4 that you follow it through on your commitments and
5 that's what you're speaking about here, but are you
6 going to look at all as to the effectiveness of those
7 commitments? In other words, are you going to look at
8 whether those commitments have truly identified aging
9 problems, or are there aging issues that occur that
10 were not surfaced by those commitments?

11 MR. POLASKI: The answer to that is
12 briefly yes, because all these commitments are in
13 existing programs. Some of them existed before, some
14 of them are existing new, and they're all subject to
15 our normal routine self-assessment effectiveness
16 reviews, so we'll be looking at that, you know, as
17 part of normal business, like we look at all of our
18 other programs.

19 MR. BOHLKE: What we've got as part of our
20 corporate structure is a strong corporate oversight
21 function, which is different from the regulatory
22 nuclear oversight or quality assurance organization,
23 so senior engineers or subject matter experts as we
24 call them, own programs like service inspection,
25 fluid, accelerated corrosion, vessel internals, et

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1 cetera. Part of their responsibility is providing
2 regular assessments on a station-by-station basis, and
3 there are 10 stations in the fleet, wherein we compare
4 the station's performance against the expectations
5 delineated in the various program-defining documents.

6 That's a regular feature of what we do, as
7 well as being able to use the Corrective Action
8 Program to be able to clump together things that may
9 appear to be related for the purpose of doing common
10 cause analysis, to see if there are other programmatic
11 or process weaknesses that surface from that route.

12 MEMBER FORD: So as I understand what
13 you're saying, is most, if not all of these programs,
14 new or augmented programs are going to -- you're not
15 just going to wait until the end of the current
16 license period to implement those programs. They're
17 going to be implemented soon?

18 MR. BOHLKE: They will be incorporated in
19 plant procedures. Some of those plant procedures will
20 go into effect immediately. Others where we have
21 committed to one-time inspections, we will have a date
22 certain for those, and then the results will be
23 reviewed.

24 MEMBER FORD: All right. Thank you.

25 MEMBER ROSEN: Bill, I understand what you

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1 said about corporate having an individual, a senior
2 individual who looks at say, in-service inspection
3 across the fleet, et cetera. Do you also have in mind
4 having a senior person who would look at aging
5 management throughout the fleet?

6 MR. BOHLKE: Mr. Rosen, we don't
7 necessarily view aging management as a separate issue
8 from the normal material condition maintenance of the
9 plant. There are a lot of things we're taking care
10 of. We're going to talk about a couple of those
11 related to the scam discussion later, but as we move
12 on to year 40, we're addressing issues that relate to
13 the age of components, sometimes because of their
14 unreliability and the threats that they provide to
15 generation, and for other reasons. So there's --
16 we're getting more sophisticated all the time, but it
17 -- I want to say that it's not our intention to
18 segregate aging management as a separate activity, but
19 to fold it into our daily activities for the stations,
20 for all the stations.

21 MEMBER ROSEN: So for instance, that
22 senior engineer who is in charge of in-service
23 inspection throughout the fleet would have as part of
24 his regimen, thinking through aging management with
25 respect to in-service inspection.

1 MR. BOHLKE: Absolutely correct.

2 MEMBER ROSEN: Okay. Thank you.

3 MR. POLASKI: On slides 8 and 9 we have a
4 list of all of the aging management activities. And
5 this is Appendix A right out of the application. And
6 for each one of these, you can see under the
7 commitment tracking number, that we have assigned a
8 commitment tracking number. Now these commitments are
9 all listed in our commitment tracking module that's
10 part of our plant information management system, which
11 is a large database that we use for work orders,
12 commitment tracking, RAD protection, a lot of
13 different parts that go together.

14 Included in here are all commitments that
15 we've made to the NRC, internal commitments we've made
16 to ourselves, commitments we've made to other
17 regulatory agencies, and all of the licensure
18 commitments are in this, so these are being treated
19 just like we treat any of our other commitments. As
20 you can see, there's a commitment tracking number
21 assigned to each of these.

22 The far right-hand column under "Future
23 Actions", we've initiated an action request, and on
24 slide 9, that actual number for that is there. It's
25 A1329928 - remember that number. I'll show you that

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1 later, but that's an action request that we have
2 identified for future actions we've not yet
3 implemented. And each of those future actions has an
4 evaluation item number, and the first one you see here
5 is E19, and it goes down the list, E08, and they're
6 all identified in our system.

7 Specifically, the one I've highlighted is
8 down near the bottom, 2.9, Fire Protection Activities
9 with a commitment tracking number T04342, and there's
10 three future actions to that. And we highlighted the
11 T number, and also E06, because I'm going to show you
12 specific examples of those as we get through this
13 presentation.

14 MEMBER APOSTOLAKIS: I'm just curious on
15 slide 8. Item 1.13 is the Corrective Action Program.
16 How does one decide that program is a good program?
17 Is it just industry experience, or --

18 MR. BOHLKE: The Corrective Action Program
19 has always been there, and it's what we do, how we
20 make changes in the plant. And it gets evaluated --

21 MEMBER APOSTOLAKIS: This is what it is,
22 but how do you decide that it's good enough?

23 MR. BOHLKE: By doing effectiveness
24 reviews as a Corrective Action Program, one of which
25 is being completed as we speak for the fleet of Exelon

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1 and Amergen plants, where we go in and look at the
2 process to see that the process is working as we have
3 designed it. If not, make adjustments, and then look
4 at the effectiveness of the corrective actions
5 themselves to see if we are solving problems the first
6 time out of the box effectively, so that's part of an
7 effectiveness review that's being conducted by the
8 Regulatory Affairs people who own the process in
9 conjunction with the Nuclear Oversight people who do
10 all forms of oversight and assurance.

11 MEMBER SHACK: So the measure of
12 effectiveness is whether the problems repeat
13 themselves?

14 MR. BOHLKE: That's a negative measure of
15 effectiveness. That's correct.

16 MEMBER APOSTOLAKIS: Or how long it takes.

17 MR. BOHLKE: That's another one.

18 MEMBER SHACK: I'm sure you went through
19 this at the Subcommittee Meeting, but where would you,
20 in fact, address aging management for the lower vessel
21 head penetrations? Is that considered in your ISI
22 Program?

23 MR. BOHLKE: That's part of the Vessel
24 Internals Program.

25 MR. POLASKI: That's Vessel Internals --

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1 MR. BOHLKE: And the BWRVIP is looking at
2 things like that.

3 MR. POLASKI: One thing I'd like to note
4 on here, on slide 8 we have listed existing programs
5 and enhanced programs. These are all -- even
6 enhancements for existing programs, we had to make
7 some tweaks and minor improvements to. And as you can
8 see, there's like 29 of them on this list. On slide
9 9 is new aging management activities, of which there
10 are six, so most of the things that we're planning for
11 license renewal already exist, and we didn't need to
12 add a whole lot. And these programs that we added are
13 not major programs. They're in relative size compared
14 to some of the other ones, like ISI Program, and FAC,
15 and water chemistry are not nearly as large.

16 I'd like to go on to slide 10, and this is
17 an actual printout of our PIM System, of a plant
18 commitment. And the first number I told you to
19 remember, T04342, there it is. That's our commitment
20 number, and this is out of PIM so the type of activity
21 it's a commitment. It's for Peach Bottom. This is --
22 you know, the status is it's not yet satisfied and
23 it's initiated so we haven't completed this
24 commitment. The topic is Peach Bottom License Renewal
25 Fire Protection Activity. All of these have a central

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1 element number of PBLR so we can go into the system
2 and find them using our code. And then on each of
3 those there's a description of what the commitment is.
4 And if you look at every one of them, and start out
5 with potentially a generic paragraph at the beginning
6 which discusses this is a commitment for Peach Bottom
7 license renewal. Then there's a statement of the
8 commitment with all the details that are in it. Down
9 lower is the scope of the fire protection activities
10 will be enhanced, you know, things like requiring
11 additional inspection for deluge valves and sprinkler
12 systems. Second, perform functional test of sprinkler
13 heads that have been in service for 50 years, so
14 that's one of the things that we've committed to
15 enhance and do in the future.

16 MEMBER FORD: So these cast iron fire
17 protection components that are losing material due to
18 leeching. I mean, I don't understand what components
19 they are, and why they lose material due to leeching.

20 MR. POLASKI: We've got a program in place
21 that's going to look for selective leeching of --

22 MEMBER FORD: What kind of components are
23 they?

24 MR. POLASKI: Valves, piping.

25 MEMBER FORD: So they're part of the

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1 piping. It's the water in the pipe that's --

2 MR. POLASKI: It's the water in the system
3 that could cause selective leeching.

4 MR. PATEL: This is Erach Patel. It's
5 cast iron and raw water systems for fire protection.

6 MR. POLASKI: In fact, we've already done
7 one inspection of a fire hydrant or a fire hydrant
8 valve and looked at it for selective leeching, and
9 found no evidence of it so far.

10 MEMBER POWERS: Leeching is such a
11 peculiar term to apply to cast iron, I'm intrigued.
12 What are you leeching out?

13 MR. PATEL: I'm sorry. What is the
14 question?

15 MEMBER POWERS: The question is what
16 leeches out.

17 MR. PATEL: The graphite.

18 MR. POLASKI: Yeah. As I understand it,
19 you can have selective leeching, and you can look at
20 the metal and it looks like it's all there, but if you
21 come down on it hard, it just crumples, sir.

22 MEMBER POWERS: How do you determine
23 leeching? Usually that's --

24 MR. POLASKI: The one that we did do, we
25 had removed the component for maintenance and we sent

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1 it to our test labs, and then ran tests on it in
2 laboratory conditions. They checked for hardness is
3 what they really checked for.

4 MR. PATEL: They checked for hardness, and
5 they also do fracture mechanics.

6 MR. POLASKI: Yeah, that one -- I think
7 they actually took that and cut it apart and looked at
8 microbiological --

9 MEMBER SHACK: Then they literally
10 replaced the head.

11 MR. POLASKI: Oh, yeah. Well, this was a
12 component that was being removed and replaced, so we
13 took the --

14 MR. PATEL: We took the opportunity to
15 test it.

16 MR. POLASKI: On slide 11, this is the
17 second page of the same commitment. You can see that
18 we've listed the aging effects that are managed, so
19 we've got fire protection, piping, sprinklers and
20 valves, visual inspection to detect loss of material,
21 cracking, flow blockage. And you won't find selective
22 leeching on here because that was a separate program
23 we initiated just for that one activity.

24 Some other things just to point out,
25 sprinkler heads in service for 50 years, gone through

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1 testing to detect flow blockage. Some other examples,
2 things like visual inspection for fire or loss of
3 material, so we've got it all delineated in here, what
4 our commitment is, what we're doing. And then as part
5 of that --

6 MEMBER POWERS: Your sprinkler head has
7 been in service for 50 years, but again in-service for
8 a sprinkler head is a peculiar term because --

9 MR. POLASKI: Its in-service begins when
10 they were installed in the plant, not when we started
11 operating.

12 MEMBER POWERS: Well, how many times have
13 these sprinkler heads actually been activated?

14 MR. POLASKI: Very, very few.

15 MEMBER POWERS: One would hope.

16 MR. POLASKI: Yeah.

17 MEMBER FORD: Could I just --

18 MR. POLASKI: We have references to each
19 of the aging management reviews that we performed on
20 --

21 MEMBER FORD: Could I just come back to
22 this leeching question? It's not unusual degradation
23 mode, but I don't know. Is it an approved
24 non-destructive testing process by, for instance, the
25 petrochemical industry, or --

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1 MR. POLASKI: As I understand, there is
2 debate about whether you can do it in situ with a
3 portable hardness testing device. Some people think
4 you can, other people think you cannot.

5 MEMBER FORD: But is there or is there not
6 an approved standard for doing this?

7 MR. PATEL: Not as far as I know.

8 MR. POLASKI: Not that we know of.

9 MR. PATEL: It's usually a destructive
10 test, or a --

11 MEMBER FORD: Okay. So you're dead.

12 MR. PATEL: Yeah.

13 MR. POLASKI: Now what we've seen so far,
14 we haven't seen any indication of it at Peach Bottom,
15 so I mean -- but we are going to look for it, and the
16 metallurgists have told us based on the water
17 conditions, they don't expect it will occur, but we're
18 still going to check for it periodically. And it's
19 not the kind of thing we're going to be pulling a
20 hundred feet of piping out every year to go look at.
21 We will take the opportunity when it arises, when
22 equipment is removed, and when we replace to inspect
23 it.

24 MEMBER FORD: But the consequence of an
25 undetected degradation of such a pump housing, et

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1 cetera, merits that sort of approach?

2 MR. POLASKI: What I understand, in
3 conditions where selective leeching can occur and it's
4 significant, you can essentially lose the structural
5 integrity of the body of a valve, and it would just
6 fail.

7 MR. BOHLKE: So we're looking for -- in
8 addition to looking for things that are self-
9 revealing, i.e., leaks in water mains, we're looking
10 for things that aren't self-revealing. This would be
11 one of them.

12 MEMBER FORD: Which are latent which could
13 go in time of a knockout, and or when they must be
14 used.

15 MR. POLASKI: But these are the kind of
16 things that -- and I'm not an expert on metallurgy and
17 selective leeching. I understand that it doesn't
18 happen overnight. I mean, it's a long slow process,
19 so you've got -- if you're looking you'll detect it in
20 your end stages. And if we find it in one valve, then
21 we'll do more investigations to find out if we have it
22 other places.

23 Taking a further look at this is part of
24 this commitment. We also have listed implementing
25 activities. We wanted to do maintenance procedures,

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1 check valve maintenance, and I'll give an example of
2 that later, so there's two of these here. Go on to
3 the next slide.

4 Now we're on to 93 through 100, so there's
5 a whole of activity specifically listed here, every
6 procedure that we have involved is listed. And the
7 two bottom ones, 99 and 100, are listed as RT. That's
8 a routine test for us, and it's a place keeper. These
9 are activities that have not yet been implemented, but
10 they're listed here as things we need to do. And this
11 one has sprinkler heads in-service for 50 year
12 inspection. And there is an activity number,
13 A1329928, E06. And this is the one I showed you on
14 the first page, so this links that commitment through
15 the T number to this procedure, which still needs to
16 be put in place. And it has a due date of June 15th
17 of 2012. It's got an implementing organization which
18 is designated to a particular group. And you could go
19 through the details of that. It's assigned to an
20 actual individual who has that responsibility to make
21 sure that occurs by that date. And as part of our
22 normal process on commitments, they're reviewed and
23 people make sure that they're kept up to date.

24 MEMBER ROSEN: Now on June 15th, 2012,
25 does a red flag, does the computer put up a red flag,

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1 or is this guy supposed to remember that that's --

2 MR. POLASKI: The computer puts up flags
3 before 2012, so it will flag it well-enough ahead of
4 time. Now the other thing is it's 2012, those dates
5 are calculated such that you've got time in there
6 allowed to implement it before you actually get to the
7 50 years, so it's all built into the process.

8 Now remember, we started up the plant in
9 1973. This is 2012. That's only 40 years after plant
10 start-up, and the sprinkler system went into effect a
11 couple of years before that, so even if you miss 2012
12 by a year or two, you'll still meet your 50 year
13 commitment, so we built that allowance in there.

14 CHAIRMAN BONACA: I have a question
15 regarding all these programs are in place to address
16 degradations that we expect to see, possibly we're
17 checking to see that they don't occur for one time
18 inspection. But there would be certainly some
19 degradation of passive components that we do not
20 expect right now, and GALL does not expect that will
21 occur. You will identify that. You'll have a
22 corrective action taking place on that. How does that
23 information get communicated to the industry so that,
24 for example, the GALL report is properly updated to
25 recognize that things that were not expected are going

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1 to happen? I mean, it seems to me that there is an
2 issue here on a genetic basis with other plants that
3 recognize those issues.

4 MR. KUO: If I may, this will be part of
5 our license renewal lessons learned. As soon as we
6 find something that we say we never expected before,
7 that we will collect the information. And if it is
8 warranted, we will issue ISG, Interim Staff Guidance,
9 for the industry to use basically for license renewal,
10 and for industry for other purposes. But in license
11 renewal specifically, we will issue the Interim Staff
12 Guidance for this particular issue.

13 CHAIRMAN BONACA: But among all the
14 degradation of the core of the plant, how does this
15 piece of information come to you?

16 MR. KUO: There will be a license event
17 report, and we will be collecting that. When we
18 revise our GALL report the next time, we will be
19 reviewing all this license event report throughout
20 this gap period.

21 CHAIRMAN BONACA: So the burden is all on
22 you to recognize that these are aging issues not
23 previously recognized, and there is no burden on the
24 licensee to identify it, and communicate that there is
25 a degradation that is not addressed right now in the

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1 programs there now.

2 MR. KUO: Licensee's burden is to file the
3 licensee event report.

4 CHAIRMAN BONACA: Okay. But not specific
5 to degradation.

6 MR. KUO: Right.

7 MEMBER WALLIS: So there isn't much
8 mechanism for degrading a sprinkler head, but you've
9 got piping all over the plant, which leads to the
10 sprinkler heads. And presumably, there are valves
11 which can leak, you could have a very slow leak which
12 goes into the line and evaporates. You wouldn't know
13 it's there, but it's corroding the line.

14 MR. POLASKI: We have procedures in place
15 to check for degradation of the wall thickness on the
16 piping also, so the sprinkler head is just one of
17 many.

18 MEMBER WALLIS: Yeah. I'm thinking more
19 of corrosion products like rust which when you turn
20 things on, blocks the sprinkler head.

21 MR. BOHLKE: Yeah, rust and leak were the
22 two challenges for including piping systems, and we've
23 got programs in place --

24 MEMBER WALLIS: You monitor that. Okay.
25 Thank you.

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1 MR. BOHLKE: -- to check for that.

2 MR. POLASKI: So let's go on to the next
3 slide. This is an actual page out of the procedure,
4 M3701, which is one of the first things we mentioned.
5 The step that's here, visually examine the following
6 for damage, excessive wear, cracks, corrosion, fitting
7 erosion, evidence of Asiatic Clams or other
8 abnormalities reported in the CREM, and that's part of
9 the work order process. That CM-1, that's the
10 commitment. That annotates that step that's a
11 commitment that we've made, so if you go to the next
12 slide, this is further in the same procedure down at
13 the bottom under commitment, CM-1, Peach Bottom
14 License Renewal Fire Protection Activities. All
15 right. So this indicates that this is for license
16 renewal, and there's that T04342 number. So every
17 step that's in a procedure, or in some cases it may be
18 the entire procedure that we've credited for
19 licensure, and we have annotated. There's a reference
20 back to the commitment item, and all of it's tied
21 together.

22 MEMBER LEITCH: Fred, I notice that this
23 is not unitized. Is that because this is a common
24 system fire protection, and --

25 MR. POLASKI: Fire Protection system.

1 MEMBER LEITCH: But normally you keep
2 records on a unitized basis. Right?

3 MR. POLASKI: Yes.

4 MEMBER LEITCH: For systems which are not
5 common.

6 MR. POLASKI: Yes.

7 MR. PATEL: If you go here you will see,
8 Graham, you will see the unitized one, 330-2, 370-2,
9 350-2.

10 MEMBER LEITCH: Oh, okay.

11 MR. PATEL: Okay?

12 MEMBER LEITCH: Good. Thanks.

13 MR. POLASKI: Onto slide 15, this is the
14 Action Request for future activities. Here's the
15 Action Request number. This is Evaluation number 6,
16 evaluating organization it's assigned to, with the
17 individual assigned, valuation requesting the --
18 that's the license renewal project. And then this is
19 a description of what needs to be done for testing the
20 sprinkler heads in 50 years in the future, so this is
21 all documented in there. The representative sample of
22 sprinkler heads that have been in-service for greater
23 and required to be functionally tested. And there's
24 a reference in here to NFPA25, which has got the
25 requirements in there, so this documents what needs to

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1 be done in the future. So we have transferred all of
2 the detailed information from the licensure
3 application documents into this Action Request so that
4 the individual who has to implement in the future, has
5 the specifics of what needs to be done.

6 As far as, you know, so what else is left
7 to do? We are -- our configuration change control
8 procedures are being updated to address license
9 renewal requirements. This is the implementation,
10 5437B. Included in this will be anything like
11 physical plant modifications, operational changes,
12 water chemistry conditions, that kind of thing, and
13 other changes to the current licensing basis. And
14 we'll address all of the 10 CFR 5437B requirements.

15 As far as maintenance of records, Exelon
16 Records Management System is going to retain documents
17 that we generated during the application, such as
18 scoping packages, position papers we wrote, the
19 license renewal boundary drawings and all of our aging
20 management reviews. And in future self-assessments
21 and NRC inspections, we're going to validate whether
22 we've managed our commitments properly and they've all
23 been implemented. And that concludes my remarks. Do
24 you have any questions?

25 MEMBER APOSTOLAKIS: Peach Bottom was one

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1 of the NUREG 1150 plants, the PRAs that was done a
2 long time ago. What was the core damage frequency?
3 Does anyone remember? I think it was below 10 to the
4 minus 4, wasn't it?

5 MR. POLASKI: I think it's 10 to the minus
6 6, I think.

7 MEMBER APOSTOLAKIS: It was pretty low.

8 MR. POLASKI: Yeah. It's pretty low,
9 yeah.

10 MEMBER APOSTOLAKIS: And there was a
11 complete PRA done, as I remember, I mean including
12 external events. Right? Including earthquakes and
13 EPRI versus Livermore, you know, the whole works. You
14 were one of the plants that did the whole thing. Did
15 all that work play any role at all here, or you
16 followed the regulation?

17 MR. POLASKI: We followed the regulation.
18 The regulation is not deterministic of what's in
19 scope. As far as inspections, we didn't use the PRA
20 specifically, but if we had -- I think we used some
21 engineering judgment on low safety significant systems
22 for amount of inspection versus a system that was more
23 safety significant. But, you know, we try to do
24 things like find -- if we had to do some inspections
25 of piping, to find those areas that we thought were

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1 most susceptible to aging, as opposed to just doing a
2 random sampling.

3 MEMBER APOSTOLAKIS: Are you using the PRA
4 in other activities?

5 MR. BOHLKE: We use the PRAs in a variety
6 of activities. You've seen the work we've done in
7 support of uprates. You've seen the work we've done
8 in support of all outage times. And, of course, it's
9 used on a daily basis to monitor activities creating
10 risk profiles. It is -- PRAs are embedded now in our
11 daily work, has wide application.

12 MEMBER APOSTOLAKIS: Very good. Thank
13 you.

14 MR. BOHLKE: So let me start talking a
15 little bit about the scram, and I want to lead it off
16 because in a certain sense, I have my fingerprints on
17 it. We have been observing -- to set the stage a
18 little bit more, we have, as you know, 17 sets in
19 Amergen and Exelon, we have 13 GE turbine generator
20 sets in Amergen and Exelon. Of those 13 TG sets, 10
21 of them have Mark I EHC systems. And they went into
22 service in Dresden II in 1969ish, up through Limerick
23 II, I believe, in 1990ish, '89. So we have had EHC
24 systems in service for over 30 years. We have been
25 observing that we are getting a rate of failure in EHC

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1 cards that is random and relatively unpredictable.
2 And the problem with the Mark I EHC system is that
3 they're in all our systems. They're not self-
4 tolerant, they're not self-diagnostic, and they're not
5 recoverable on line. So in certain failures in
6 certain cards, we're going to flip the unit.

7 Since our corporate goals are 95 percent
8 capacity factor, and basically a half percent for its
9 loss rate, we are systematically going through our
10 stations unit by unit and removing vulnerabilities.
11 We established that EHC cards were a vulnerability, so
12 in late 2001 we put together a campaign to
13 aggressively manage the electronic cards in the EHC
14 systems by selective and preemptive replacements. The
15 card that failed at Peach Bottom was one of those
16 cards that was replaced.

17 When we replaced the card, it had an
18 up-amp in it which had a latent manufacturing defect,
19 which was -- we did not test for. The card fabricator
20 did not test that component for that failure, so
21 therefore, it went through in the factory, and it was
22 not identified during the burn-in cycle. We
23 understood that preemptive replacement of electronic
24 cards puts you at risk for infant mortality, so we
25 have burn-in cycles to try to get us through that

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1 hump, and these cards have been burned-in. So the
2 event basically resulted, a card failure, which opened
3 the bypass valves, which led to a reactor trip on low
4 pressure. Okay?

5 So in a certain sense, and this is ironic
6 that we're talking about in a license renewal context,
7 the very fact they're going to be proactive in trying
8 to aging manage these cards led to the event because
9 we had some barriers in place, but obviously not
10 sufficient barriers in place to account for this
11 replacement. So we had the scram, and then we had
12 some complications, as you characterized it, Mr.
13 Leitch, associated with the scram. And Gary is going
14 to hit the high level of those. He's going to talk
15 about a couple, and then we're going to stop. We'll
16 go to question and answer, if that's okay with you.

17 MR. STATHES: Good morning. My name is
18 Gary Stathes, and I'm the Site Engineering Director at
19 Peach Bottom Atomic Power Station, and today I'm going
20 to discuss the scram. As Bill Bohlke led off, we had
21 a circuit card with a manufacturing defect embedded in
22 that card. And our burn-in testing and tuning did not
23 detect that failure. It had approximately 1900 hours
24 in service before that card failed, so it was an
25 undetected failure that caused the scram. So clearly,

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1 we are not satisfied with the equipment performance
2 issues that were identified as a result of this scram.
3 And we had a post scram review process that identifies
4 and tracks equipment, performance issues, as well as
5 operator performance issues so we can include those in
6 our corrective action program, and make improvements.

7 CHAIRMAN BONACA: Excuse me, just a
8 question.

9 MR. STATHES: Yes.

10 CHAIRMAN BONACA: Was this a defect that
11 was from the beginning in the card, and was not
12 detected by the testing, or was it a defect that
13 developed in the first hours --

14 MR. POLASKI: It was a latent defect
15 embedded in the manufacturing --

16 CHAIRMAN BONACA: It was, and the testing
17 program did not identify it.

18 MR. STATHES: That is correct. The
19 failure analysis performed on this particular
20 sub-component identified that in the manufacturing
21 process, some very fine cracks in the substrate
22 existed, which allowed moisture to enter into that
23 sub-component and oxidize the circuit in there. And
24 that's what eventually caused the failure.

25 MEMBER ROSEN: Is there any corrective

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1 action you can take to enhance your burn-in process to
2 detect such a thing?

3 MR. POLASKI: We don't think that that's
4 going to be detectible during a burn-in, because as
5 Gary -- we're never going to burn a card in for 1900
6 hours. Where we are -- what, in fact, what the card
7 fabricator is doing now is testing every opium,
8 because we can detect this through specific component
9 directed testing.

10 MEMBER ROSEN: So you've made changes to
11 your pre-service testing process.

12 MR. STATHES: That is correct.

13 MEMBER SIEBER: The supplier of the card
14 is not General Electric, I take it. You have a third-
15 party supplier.

16 MR. STATHES: The supplier of the card is
17 General Electric. However, the supplier of the sub-
18 component is a third-party vendor.

19 MEMBER SIEBER: Okay.

20 MR. POLASKI: Interesting, so we'll
21 embellish it some more. When we went into this
22 preempted card replacement strategy, we basically ran
23 out of this model op-amp, you know, in a lot that GE or
24 the card fabricator had on hand, and we had to order
25 an additional amount of these op-amps, and it was in

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1 that additional lot that this manufacturing defect
2 existed.

3 MEMBER POWERS: I guess I'm a little
4 confused. Going to test now the specific op-amp, but
5 it sounds to me like you've got a more general
6 inadequacy in your testing program. Isn't there more
7 that you need to do here? I mean --

8 MR. POLASKI: We don't think so, Dr.
9 Powers.

10 MEMBER POWERS: Is there more than a
11 latent defect that can occur in this manufacturing
12 except this op-amp?

13 MR. POLASKI: Resistors and capacitors get
14 checks, some of the diodes also. This particular op-
15 amp had a history of failures, and for whatever reason
16 it was not felt necessary by the sub-supplier or the
17 card fabricator to test it. Of course, now we know
18 better, and this is not atypical. Now we know better.
19 We go back and put the controls in place, but the
20 point that Gary made and I want to reinforce is that
21 the EHC system on Peach Bottom II went through an
22 extensive re-tuning by Peach Bottom technicians and GE
23 technicians prior to returning the unit to service to
24 try to correct some longstanding issues with the
25 performance of EHC system. So when we came out of

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1 that outage, the EHC system, to the best of our
2 knowledge, was in as good a shape as it had been in
3 years.

4 MEMBER POWERS: Yeah, but you said the
5 same thing when you replaced the cards.

6 MR. STATHES: We have 157 circuit cards in
7 the EHC system. Twenty-seven of those circuit cards
8 have been determined to be what we call critical
9 cards, that a failure of one of those cards would
10 either result in a de-rate or a scram. It was those
11 27 cards that we were focused on. When we reviewed
12 circuit card and life and sub-component life, we
13 looked at those sub-components that would be
14 susceptible to an age-related failure, and that's how
15 we got to this population of 27 cards. The op-amp,
16 however, was one component that did not have an age-
17 related -- there was no age-related effects of that
18 particular sub-component, so our process of inspecting
19 and testing the card would indicate that if this card
20 worked after it was installed, burned-in, tested and
21 tuned, that the likelihood of this type of failure
22 would be relatively low, if not zero.

23 One of the actions that we have going
24 forward is to look at the opportunity to do dynamic
25 testing of the circuit cards before they would be

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1 installed. Now dynamic testing on this system is not
2 something that we have available to us right now, but
3 we're pursuing.

4 MEMBER POWERS: The argument for the
5 particular flaw is, you probably won't pick it up,
6 even in a dynamic test. They're not going to test
7 long enough. There's not going to be enough water get
8 in there, not enough corrosion and whatnot. I'm less
9 concerned about the specific flaw than I am okay, this
10 manufacturer presumably could have known had he looked
11 back at his records on those cards, that there was a
12 flaw here, and he maybe should have tested that
13 specific component. How about all the other things
14 that if he now looks back at his records, he says
15 well, are there other things that I don't test that I
16 should have tested?

17 MR. POLASKI: We're not aware that there
18 are any components like that. The op-amps had been a
19 particular --

20 MEMBER POWERS: Yeah, but what I'm asking
21 is he aware of it? I mean, you're aware of this
22 component.

23 MR. POLASKI: I can't speak for the sub-
24 supplier, but I can speak for GE because I've had this
25 dialogue with their management, and they have

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1 committed to us and to other clients to be more
2 aggressive about the controls they put on the sub-
3 components as they come through.

4 MEMBER POWERS: That's the answer I
5 wanted.

6 MR. POLASKI: For example, using mil
7 specs --

8 MEMBER POWERS: That's the answer I
9 wanted.

10 MR. POLASKI: Okay.

11 MEMBER ROSEN: Well, we love to talk about
12 operating events, but the real purpose of this
13 discussion is to try to smoke out what is the lessons
14 learned for the license renewal program in general?
15 Can you help us with that?

16 MR. POLASKI: Well, as I said at the
17 outset, we were trying to be proactive on managing the
18 lives of these cards, so there are a bunch of cards in
19 the station that won't survive the current license.
20 For example, we have purchased already the first set
21 of replacements for this Mark I EHC system. We will
22 put through -- we will replace all the Mark Is with
23 Mark Vis, which are digital, which are
24 self-diagnostic, which are fault tolerant, which are
25 maintainable on line. That set of vulnerabilities

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1 that drove us to replace these cards in the first
2 place go away, and we're going to be replacing a
3 substantial number of other electronic circuit cards
4 in other systems, both non-safety and safety.

5 In the non-safety systems, those that we
6 need to replace with a high reliability we expect from
7 these stations, and the safety side to try to get us
8 into a better position with regard to how we're doing
9 the RPS Logic Matrix Test. In other words, have the
10 components retest itself instead of us having to test
11 it, which will give a substantial even tech spec
12 space, so over the next I would estimate dozen years,
13 as more and more units come through license renewal,
14 we'll be taking a bunch of cards out of play. But we
15 won't be taking them all out, so from our standpoint
16 it's how do we become ever more sophisticated in our
17 ability to detect incipient failures so we can
18 preemptively replace, as opposed to having them be
19 self-revealing, and having to suffer the consequences,
20 so our current focus is on the cards that we see a
21 critical, critical either to safety or critical to
22 plant reliability. So we're spending a considerable
23 amount of money fleet-wide to take those out of play.
24 We're doing forensic analyses of the cards that failed
25 so we begin to learn even more about the failure

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1 mechanisms, whether they're component related or
2 whether they're related to the age of the cards and
3 the circuits, so we can begin getting some insights
4 which will guide us even more specifically to look for
5 things in areas that we haven't replaced. That's
6 where I think we're going in this regard.

7 MEMBER ROSEN: Is that the kind of
8 guidance the GALL report might need to have at some
9 point, when it says when you begin replacing things
10 because they are near the end of their life, or
11 because of license renewal activities, think more
12 about infant mortality and put in prevents to run into
13 this thing, and then have a little reference to this
14 event?

15 MR. POLASKI: I think the mechanism that
16 will actually come into play will be an EPRI report
17 which compiles failure data and begins to categorize
18 them, and point to trends which can then be ported
19 over and appended to GALL. I think that would be
20 particularly useful. And I know that EPRI is engaged
21 in that kind of activity right now.

22 CHAIRMAN BONACA: One of the reason why we
23 asked for presentation on this issue has to do with
24 the fact that not only was it card failure, but there
25 were other latent failures that surfaced, and that

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1 raised two questions in our mind. The first one was
2 what else is there? The second question is, how is it
3 applicable to license renewal? Well, because aging
4 typically may develop latent failures of some type or
5 latent defects, and so we're interested in how
6 effective your corrective action is identifying
7 defects, and in correcting those. And that's why --
8 and maybe you want to comment on the other latent
9 failures that were evidenced by this and why you feel
10 that your corrective action program is adequate to
11 deal with them. And you don't think that there are
12 other issues there of significance, or --

13 MR. STATHES: We had several equipment
14 failures that were identified as the result of this
15 scram. It included RICI flow oscillations. It
16 included one in a series of two secondary containment
17 isolation valve dampers that did not close within the
18 required stroke time, reactor water cleanup isolation
19 on high, non-regen out light temperature, startup
20 feedwater control valve that did not operate properly,
21 so that's just a couple of the issues. So we've done
22 a common cause analysis for our corrective action
23 program to identify trends with this. And we
24 concluded that our preventive and corrective
25 maintenance programs are good; however, what we also

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1 included is that the timeliness of our corrective
2 actions needs to be improved. So each of these
3 equipment issues, except the RICI flow control
4 oscillations, each one had a corrective action or an
5 action plan that identified an issue with the
6 equipment. However, the timeliness of our
7 implementation of that corrective action was less than
8 adequate, so we've gone back and we've reviewed that
9 to ensure that our corrective action program and the
10 timeliness of those corrective actions are
11 appropriate.

12 CHAIRMAN BONACA So you're saying that
13 some of these conditions were known.

14 MR. STATHES: Oh, that is correct.

15 CHAIRMAN BONACA: They were waiting for
16 correction, and so, therefore, they were not latent
17 any more.

18 MR. STATHES: That is correct. Now the
19 RICI flow oscillations, we had -- RICI automatically
20 started. There was flow oscillations around it, 600
21 gallon per minute injection, a control point. The
22 operator needed to put it in manual mode after about
23 five seconds of these oscillations, and take manual
24 control to control reactor vessel level.

25 Now given the scram, we would have taken

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1 manual control of RIC1 anyway; however, at that time
2 it should have operated on automatic. We went back to
3 when this digital controller was installed and found
4 that during that time frame, the maintenance
5 technicians adjusted the gain setting to make the RIC1
6 controller more responsive to the test mode that they
7 were in. It's all clearly documented, but since that
8 time our modification process was strengthened to
9 include a more robust review of any change that would
10 be done in that post maintenance testing process to
11 look at the broader effects of making a change to the
12 post maintenance test while the modification was being
13 installed. Other, secondary containment isolation
14 valve, damper performance --

15 MEMBER LEITCH: In other words, Gary, to
16 understand it.

17 MR. STATHES: Yes.

18 MEMBER LEITCH: Your flow line up is not
19 the same in the test mode as it was in actual
20 operation, and that's why the gain setting needed to
21 be different?

22 MR. STATHES: Yes, Mr. Leitch. Thanks for
23 pointing that out. When we are in the test mode,
24 essentially it's condensate storage tank condensate
25 storage tank flow loop and is not injection into the

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1 vessel, so injection into the vessel is a different
2 flow characteristic. When the gain setting was
3 adjusted or optimized by the maintenance technician,
4 we were in the condensate storage tank flow loop, and
5 we should have maintained the gain setting that was
6 identified in the modification package rather than
7 optimize it.

8 MEMBER ROSEN: Or at least put it back in
9 the proper setting after the test.

10 MR. STATHES: Exactly.

11 CHAIRMAN BONACA: How many corrective
12 actions do you have in your corrective action program
13 outstanding, waiting to be --

14 MR. STATHES: Total corrective actions?
15 I couldn't answer on the totality of that.

16 CHAIRMAN BONACA: Roughly, 500, 3,000?

17 MR. POLASKI: Somewhere between 500 and
18 3,000.

19 MR. STATHES: Well, I can make a statement
20 regarding Peach Bottom's corrective maintenance
21 program. We have approximately 28 corrective
22 maintenance work orders that are outstanding, and
23 that's 28 items that are on our radar screen for being
24 corrected in the plant, so we do have a backlog of
25 corrective maintenance has been on a positive trend.

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1 And also, our preventive maintenance program or the
2 PMs that are done --

3 MEMBER POWERS: You're going to have to
4 explain to me what positive means in this context.

5 MR. STATHES: Okay. I'll do that. So
6 every corrective maintenance activity means there is
7 something in the plant that needs attention, so we've
8 gone from a backlog of several hundred several years
9 ago down to 28 corrective maintenance activities.

10 MEMBER POWERS: I was going to say 28 is
11 a nice low number, but I didn't know what -- I wasn't
12 sure where the slope was. I don't know what other
13 questions --

14 MEMBER LEITCH: Gary, I had a question
15 about the inability to open the MSIVs. And, of
16 course, these are steam turbine driven feed pumps, and
17 was that related to the fact that the -- I think there
18 were three bypass valves that didn't immediately
19 close, so you had excessive pressure differential
20 across the MSIVs?

21 MR. STATHES: That's correct, Mr. Leitch.
22 We had the number 2, the number 6 and the number 8
23 bypass valves did not go fully closed on spring
24 pressure. When electrohydraulic control pressure was
25 restored, they did go closed. Our investigation

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1 identified that while Pms are being performed on those
2 particular valves, the scope of the PM needed to be
3 broadened to capture the actuator -- to address
4 actuator performance. Now we identified that the
5 packing was tight on those particular actuators, and
6 adjustments were made. They were lubricated, and they
7 were working satisfactorily, so we have enhanced the
8 PM program for those bypass valves and we're applying
9 those for upcoming outages.

10 MEMBER SIEBER: What you're saying is the
11 way the PM was prior to the discovery that they didn't
12 operate this way, you were basically set up so that
13 they would fail if you lost your hydraulic pressure.
14 Right?

15 MR. STATHES: To answer that question --

16 MR. POLASKI: That's a safe conclusion,
17 Mr. Sieber.

18 MEMBER SIEBER: Okay.

19 MR. BOHLKE: So that lesson learned, by
20 the way, not only applies to Peach Bottom. We take it
21 to all of our BWRs, which is a program we have in
22 place to try to really get those lessons learned that
23 are very meaningful, get a lot of --

24 MEMBER WALLIS: I'm trying to get a
25 perspective. I'm sure we need to move on, but it

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1 looks to me as if there was some failure in a very
2 small electronic card, and this led to revealing a
3 whole series of latent errors which are waiting to
4 sort of happen. And then one wonders what other
5 latent errors -- is this a sort of symptom of latent
6 errors lying around your plant?

7 MR. BOHLKE: Nominally it is, which is why
8 we were pretty aggressive in establishing this common
9 cause evaluation to see where these things might be
10 clustered and what we had to do to upgrade the
11 program. We were very disappointed because we --
12 well, we had been reducing the number of scrams.
13 We've been happy in the last year or so the fact that
14 the scrams have been retained, uncomplicated scrams,
15 was a completely different character which has
16 resulted in a lot of energy and effort being put into
17 understanding.

18 CHAIRMAN BONACA: But you stated that they
19 were not related. You already knew about deficiencies
20 that then --

21 MR. BOHLKE: Right. Some of the
22 deficiencies had been identified, but the corrective
23 action --

24 CHAIRMAN BONACA: The reason why I asked
25 for the backlog on the corrective action program is

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1 did you look at what other items there are out there
2 which are significant, that may, in fact, lead to
3 additional multiple consequential failures? Should
4 you have something else happening there?

5 MR. STATHES: I can answer that. We have
6 reviewed the backlog of action requests that are
7 outstanding for equipment performance issues, and
8 ensured that they were appropriately prioritized, that
9 we have completed that. Additionally, that's required
10 quarterly of our system managers to review their
11 systems and what's outstanding on those particular
12 systems. And we are reinforcing that now through all-
13 hands meetings to ensure that any issue that may be
14 out there is brought up to management level to ensure
15 it gets the appropriate attention. But our process
16 has it prioritized, and has it put into the system to
17 be worked accordingly.

18 MEMBER SHACK: Would you have seen
19 something -- you know, if you did an A-4 type analysis
20 on your corrective action, would you have seen some
21 possibility of interaction of these corrective
22 actions, that there was somehow a cluster of
23 corrective actions that would come together and lead
24 to a bigger -- presumably your managers are looking at
25 these things one at a time sort of thing.

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1 MR. BOHLKE: I don't think I'm confident
2 that our modeling is not sufficiently granular to have
3 some PRA results give us that insight. You know, this
4 is the way the models are constructed. But on the
5 other hand, you could do almost a hand calculation to
6 say if vulnerability is existing, and reduce the
7 reliability, what would be the consequences? We had
8 not done that. We've been focusing our efforts in
9 improving the preventive maintenance program, to
10 corrective maintenance programs to take the
11 vulnerabilities out of play across the board, and
12 that's where the energies are being put in at Peach
13 Bottom at this time.

14 MEMBER SIEBER: I have one additional
15 question that goes back to your basic level
16 controller. It seems to me that the setting in any
17 controller, proportional band and rate reset, or
18 whatever you want to call it, the gain setting, those
19 are specified, written down in your procedures. Maybe
20 you have a scaling manual or something like that. It
21 is not at the whim of the technician, I presume, to be
22 able to "tune" these controls to get the kind of
23 response he or she thinks they ought to get. Is that
24 correct?

25 MR. STATHES: That is --

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1 MEMBER SIEBER: It's more rigorous than
2 that.

3 MR. STATHES: That is correct.

4 MEMBER SIEBER: Well, then I don't
5 understand how this incident occurred, because it
6 would appear that somebody decided to tune it up. And
7 if you do that, you either throw your procedure away
8 or your scaling manual away, and ignore it, which to
9 me is a fundamental flaw in the way your folks are
10 trained.

11 MR. BOHLKE: Well, you're right. We think
12 that we're a lot more rigorous and disciplined, and
13 well-trained now with respect to what adjustment we're
14 allowed -- the range in which ITs are allowed to use
15 their discretion to make adjustments, the settings
16 that they're allowed to walk away from and say that's
17 good enough. It's not abundantly clear that at the
18 time this was done, this control was put in in the
19 1994 time frame, that we were as rigorous then as we
20 are now. We've looked at that aspect of our program.
21 We think we are in pretty strong control of settings
22 like this now based on scaling manuals, as you
23 suggest.

24 MEMBER SIEBER: But if you hadn't made
25 that improvement, I think you would have a defect in

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1 your training and qualification programs that spread
2 throughout your plant on every controller.

3 MR. BOHLKE: I agree. If we hadn't made
4 that change to the program, we would have seen a lot
5 more of those.

6 MEMBER SIEBER: To me, it's important
7 since this is programmatic as opposed to individual
8 piece of equipment failing. It's important to me that
9 the attitude and the instructions that the technicians
10 have, have this built into it. That they're going to
11 follow the procedures, they're going to stay in range,
12 they're going to dial onto the setting that they're
13 supposed to, as opposed to whatever they feel like.

14 MR. BOHLKE: In addition to a restoration
15 activity if they need to make an adjustment for
16 particular testing configuration to restore for the
17 normal accident lineup. We believe that's what our
18 program now requires.

19 MEMBER SIEBER: Well, that's important.

20 MR. BOHLKE: Yeah.

21 MEMBER SIEBER: And that makes that flaw
22 different than all these other things that happen in
23 my mind.

24 MR. BOHLKE: Right. We agree with you.

25 MEMBER LEITCH: Is it fair to say although

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1 we're interested in the generic implications, yet it
2 seems to me that all of these components that failed
3 were -- could be classified as active, and therefore,
4 were not in the scope of license renewal? Is that a
5 fair statement?

6 MR. POLASKI: You're correct in that they
7 were active. Some of them were in the scope of the
8 rule, like the secondary containment isolation valve,
9 but active components are in scope do not -- we don't
10 do reviews of them for aging effects and aging
11 management because they're covered by maintenance rule
12 in other programs.

13 MEMBER APOSTOLAKIS: Well, I'm a little
14 confused now. You say some of them were passive.
15 Does the rule say that you should never seen any
16 failures anywhere?

17 MR. BOHLKE: No. The rule says you
18 identify system structures and components that are in
19 scope.

20 MEMBER APOSTOLAKIS: Right.

21 MR. BOHLKE: And then of those you -- I
22 think for the passive long-lived components that are
23 in scope to determine what --

24 MEMBER APOSTOLAKIS: I understand that.
25 But I get the impression that my colleagues don't want

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1 to see any failures anywhere, any time.

2 MR. BOHLKE: I think that should be the
3 goal of --

4 CHAIRMAN BONACA: No. To me, actually,
5 it's irrelevant --

6 MEMBER APOSTOLAKIS: What is irrelevant,
7 what I just said, or what --

8 CHAIRMAN BONACA: No, no, no. Your
9 comment is --

10 MEMBER POWERS: Oh, I would comment what
11 you said too.

12 MEMBER APOSTOLAKIS: Might as well.

13 CHAIRMAN BONACA: I said the question
14 whether or not was active or passive to me personally
15 as a member was irrelevant because I think the focus
16 for me was the corrective action program, and whether
17 or not it is in fact effective in identifying flaws
18 before some cascades and something else.

19 MEMBER APOSTOLAKIS: But there is such a
20 thing as learning from experience too. I mean, you
21 know, we can't just --

22 MEMBER POWERS: George, we're just trying
23 to understand the culture here.

24 MEMBER APOSTOLAKIS: I understand.

25 MEMBER LEITCH: Can we bring the --

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1 MEMBER APOSTOLAKIS: You used the magic
2 word. I'm with you now.

3 MEMBER LEITCH: Can we bring this portion
4 of the discussion to a conclusion here?

5 MEMBER POWERS: I have a little bit of a
6 question, but I haven't figured out how to ask it
7 without being insulting, and I'm not trying to be
8 insulting. I get the impression that you've undergone
9 a substantial change in the way you operate your plant
10 over the last some years, since 1994. And that maybe
11 you're still absorbing the lessons from that change.
12 Could you comment on that?

13 MR. BOHLKE: There is a substantial change
14 in how every unit runs, not just the Exelon units or
15 the Amergen units. You've seen that in the way our
16 capacity factors have gone up, and our four slot trays
17 have gone down, and our scrams have gone down, and our
18 performance events have come down across the industry.
19 So yeah, there is an enormous change in how we run.
20 There is another step change yet to come, because the
21 techniques that got us to be able to run at 90 are not
22 going to be able to sustain us at 95 percent capacity
23 factor and half percent forced loss rate. We simply
24 have to be a lot more aggressive. Every day presents
25 opportunities for important lessons learned on how to

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1 understand how the componentry is operating, the rate
2 at which its degrading, and what steps we might be
3 able to take to cut those up. That, I believe, is one
4 of the significant changes that the industry is
5 undergoing now, even though I'm not sure we talk about
6 it a lot publicly. It certainly has been a very
7 focused effort inside of Exelon for the past year and
8 three-quarters.

9 MEMBER POWERS: I won't argue with you
10 when you say that the industry as a whole does a poor
11 job of advertising its accomplishments. What I'm more
12 interested in is you've been on a learning curve as
13 you go through these changes. And I'm trying to
14 understand where you stand on that learning curve.
15 You reached a plateau and now you're ready to take
16 this next step to get to where you want to be, or are
17 you still on the productive part of the learning
18 curve?

19 MR. BOHLKE: We have a bipolar
20 distribution of our stations. We have some stations
21 which are still -- which are emerging from poor
22 material condition into satisfactory material
23 condition, so they're still on an up-slope. We've got
24 some plants that we can say they have adequate
25 material condition. We never say they're excellent.

1 We always say they're adequate. They're poised to
2 take the next step, because arguably we've got a
3 little more breathing room.

4 MEMBER POWERS: Where do think Peach
5 Bottom stands?

6 MR. BOHLKE: Peach Bottom is at the end of
7 the up-slope, ready for plateau before they start the
8 new efforts. They have good material condition, but
9 not the best material condition of the fleet.

10 MEMBER POWERS: That's what I was looking
11 for, because I get that impressions from what you'r
12 saying, is that it's better, but we're still learning
13 and absorbing lessons out of this process, and trying
14 to learn how to work in a different environment.

15 MEMBER LEITCH: Do you have any concluding
16 remarks at this point?

17 MR. BOHLKE: No, thanks. This has been an
18 interesting and spirited discussion.

19 MEMBER POWERS: Not excellent, but an
20 adequate experience.

21 MR. KUO: Mr. Bonaca, as I said earlier in
22 the meeting, that I have requested the presence of Mr.
23 Frank Gillespie to come to the meeting, to address --
24 to share some of his thoughts with regard to the
25 concerns that the Committee Members just expressed

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1 earlier, so if you like, Mr. Gillespie can share it.
2 He can start talking.

3 CHAIRMAN BONACA: All right.

4 MR. GILLESPIE: Yeah. It was an
5 interesting discussion, and we kind of knew you were
6 going to be interested in it. And Exelon, I've got to
7 thank them, did I think a good job in answering the
8 questions on the events.

9 One of the things that is going on, I
10 think you know as part of the Davis-Besse lessons
11 learned, there were a number of task forces and task
12 action plans that are being developed. And one of the
13 bigger ones which I think gets at the more generic
14 question that you were just addressing with Exelon on
15 how our event results -- how are the results of
16 evaluations of events actually integrated into all of
17 our programs, and we're not just going to pick on
18 license renewal, but how does a reviewer integrate in
19 that information when he develops his RAIs on any
20 particular amendment? And that is one of the key
21 points that the task force that's being put together
22 as part of the Davis-Besse lessons learned effort is.
23 And one of the things you'll see, and when you see
24 this task action plan it goes beyond Davis-Besse.

25 In this case, we're actually stepping back

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1 and trying to ask the broader question, who is
2 actually using operational data? What form are we
3 giving it to them in? Who's not using it, and should
4 be? And I think we're started to get to the crux of
5 I think where ACRS is really questioning us. And it's
6 not just the license renewal reviewer that has to
7 answer that question, but our day-to-day reviewers and
8 our inspectors.

9 How do events at one BWR get transmitted
10 to an inspector such that we're not overwhelming them
11 with volumes of text? So as important as getting the
12 information out and saying it's available in Adams,
13 that's not good enough, and we're recognizing that.

14 MEMBER POWERS: Why don't people be a
15 little more factual and say it's hidden in Adams.

16 MR. GILLESPIE: Now I just got in trouble
17 with the CIO, I'll get an e-mail this afternoon, so we
18 see this as a fundamental kind of step back, and let's
19 re-evaluate how we've been actually dealing with
20 operational event data and operational data over the
21 last 20 years, and it's time to ask how is it
22 formatted? Who are we getting it to? How are they
23 using it? Why aren't they using it, if they're not
24 using it? And it's the guy in the trenches we need to
25 get it to, the actual reviewer who's doing the work,

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1 and we have to get it to him in a form that's useable
2 for him, that gives him the insight without needing to
3 read the Encyclopedia Britannica to get it, so that's
4 ongoing.

5 Terry Reese committed to me that by next
6 month we think this will have jelled. WE're putting
7 a Commission paper and stuff together, and we'd be
8 happy to come back and talk on this subject
9 specifically. And we need about another month. I
10 think the Commission paper is due February 28th.
11 Coming back in April and kind of giving a sense of
12 we're beyond the Davis-Besse simple six high priority
13 items, instead of using the checklist, and are really
14 trying to take a broader look at exactly this kind of
15 question, so I make that offer. And if the ACRS Staff
16 gets back to us, Terry is more than happy to pull the
17 right people together and come and give you some
18 insights. And they put themselves, I think they're
19 putting themselves on a fairly short time frame.
20 We're not looking at a task force for two years, but
21 I think it's in terms of months, to try to get a
22 handle on this, and then see what kind of incremental
23 improvement can we really make to get the right
24 information to the right user.

25 Another interesting point --

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1 MEMBER ROSEN: Could you hold on that one
2 for a minute? I am certainly interested in how the
3 inspectors use operating experience, but I am much
4 more interested in how the agency uses operating
5 experience?

6 MR. GILLESPIE: Yeah. They're starting at
7 the top and saying okay, the agency has got its
8 information in-house. What are we really doing with
9 it? Are we just keeping senior management informed,
10 or is it actually affecting the day-to-day decisions
11 being made down here? And what's the latent time in
12 getting it down to the guy making the decisions?

13 MEMBER ROSEN: You'll address all the
14 levels, how the agency uses it.

15 MR. GILLESPIE: That's --

16 MEMBER ROSEN: Is decision-making process
17 in its programmatic reviews, for instance in this
18 case, license renewal, et cetera.

19 MR. GILLESPIE: That's the challenge that
20 this group is taking on. That much broader look
21 rather than trying to bandaid something that's been
22 around.

23 MEMBER POWERS: Frank, you've succeeded in
24 confusing me. That's not hard to do.

25 MR. GILLESPIE: But I do that a lot.

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1 MEMBER ROSEN: We used to have an
2 organization called The Analysis and Evaluation of
3 Operational Data, and that's now part of RES. Why
4 aren't they doing this?

5 MR. GILLESPIE: They are.

6 MEMBER ROSEN: They are.

7 MR. GILLESPIE: Yeah. Let me say -- I'm
8 saying this right now representing the Staff, and in
9 fact it's probably an even split I'm going to say,
10 with an emphasis on both sides. NRR is the user, but
11 for the most part if you look back at the Commission
12 paper that split up AEOD, and there were 18 items in
13 there, I think something like 16 of the 18 went to
14 research. And if we haven't asked them to deliver the
15 right thing, then they can't deliver the right thing,
16 so we are jointly -- it's a joint effort. It's not an
17 NRR effort. It's an agency effort, which is allowing
18 us to put this bigger hat on it.

19 MEMBER POWERS: Okay. So this really
20 utilizing those capabilities but you've added in some
21 other people on.

22 MR. GILLESPIE: Yeah. What we're trying
23 to do is say why isn't the user using it? What form
24 does he need it in? And now let's get the generator
25 of the data and the users together, and how do we now

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1 optimize it getting into the processes, getting into
2 the day-to-day decision making. In a sense it's not
3 necessarily in the day-to-day decision making as well
4 as we'd like it.

5 MEMBER POWERS: That's a good sense to
6 have.

7 MR. GILLESPIE: Other question, and this
8 was an interesting one. We were talking about with
9 this Gene Embrow only yesterday, and Rich Barrett, and
10 that's a question of once someone gets a renewed
11 license, that's their license. And it becomes
12 immediately effective. In fact, that caused us to
13 have to realize yesterday was that our routine you
14 might say review guidance now has to address any
15 change at a plant that requires an amendment to the
16 plant, has to ask the question should this have aging
17 management connected to it? Which is an interesting
18 change, because now as we're getting plants who have
19 renewed license, that is their license, there may be
20 a need now to say -- you might say the guidance we had
21 before we stared down this avenue has to have another
22 question put in it, which I think will capture one of
23 the questions, I'd be hesitate to use GALL as a
24 repository for correcting all the ills of what happens
25 after a license.

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1 I would suggest that what we need to do is
2 make sure that GALL is there to basically ensure the
3 applicant gets us everything we need that we know
4 about when he gets issued the license, but we need to
5 now look hard at all of our guidelines to say okay.

6 For Calvert Cliffs, is the review guidance
7 we're using for Calvert Cliffs asking the question, is
8 there an aging management aspect to this change I'm
9 making, so we're now starting to focus on does the
10 population of plants now have a different kind of
11 license with a new program introduced into that
12 licensing basis? We need to start adding that
13 question on. And it is a slightly different question.

14 MEMBER APOSTOLAKIS: Now I'm confused. I
15 mean, you've always had aging management programs at
16 plants. Right? So if something happens, don't you
17 ask that question? I mean, just that these additional
18 programs now are part of the --

19 MR. GILLESPIE: Yeah, but it may be,
20 George, that we've asked the question, but it's been
21 a bit informal. I mean, literally when we talked
22 about this with a small management group yesterday, we
23 said we didn't necessarily realize that, to put the
24 discipline into deliberately asking the question. It
25 was interesting. All I'm saying is there are a group

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1 of managers in NRR who are responsible for the program
2 who said you know what, our systems and procedures
3 don't necessarily say ask that question right now.

4 MEMBER LEITCH: I think we'll have the
5 opportunity to hear more about that in the future.

6 MR. GILLESPIE: Yeah. So if you'd like to
7 - - you know, if the Staff gets to this, I will be
8 happy to come back in a month and go over what we're
9 trying to do with operating experience.

10 MEMBER APOSTOLAKIS: How to use operating
11 experience, is that what it is?

12 MR. GILLESPIE: It's how to use it, how
13 are we using it, how should we use it?

14 MEMBER APOSTOLAKIS: Isn't that an
15 embarrassing question to ask in the year 2003?

16 MR. GILLESPIE: No.

17 CHAIRMAN BONACA: I think he's talking
18 about really a programmatic approach to it.

19 MR. GILLESPIE: Yeah.

20 MEMBER LEITCH: It's always a good
21 question to ask.

22 MR. GILLESPIE: Right now, George, we have
23 kind of --

24 MEMBER APOSTOLAKIS: You ask it every
25 year, is that what it is?

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1 MEMBER LEITCH: It never goes out of
2 style.

3 MR. GILLESPIE: Right now we have a
4 dependence on basically the same group that reacts to
5 the event as does the review. And, therefore, the
6 knowledge transfer is the fact that it's the same
7 group of people.

8 MEMBER APOSTOLAKIS: Well, this Committee
9 has urged the former AEOD to make sure that its
10 results are widely disseminated, and we've done it
11 several times. And I don't know that anything came
12 out. Dissemination doesn't mean that somebody is
13 actually taking action.

14 MR. GILLESPIE: All right. Now you've got
15 the key is disseminating a large volume of information
16 which overwhelms the end-user, and not actually giving
17 it to him in a form he might be able to use is a
18 question we want to put on the table. And I think
19 we've maybe overwhelmed people with material versus
20 doing some digestion of that material focused on what
21 he does for a living. That's part of the question.

22 MEMBER APOSTOLAKIS: I'll be curious to
23 see whether --

24 MEMBER LEITCH: I think this is a very
25 interesting topic, but I think we really need to

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1 proceed with the Peach Bottom license renewal
2 discussion. We're in serious schedule difficulties
3 here, David, so I would ask you to --

4 MEMBER APOSTOLAKIS: Well, as a Member, I
5 would suggest that maybe you should jump into what's
6 important. Telling us when the SER was submitted, I
7 mean, that's --

8 MR. SOLORIO: Okay. Well, I'll try to
9 skip over some of the --

10 MEMBER APOSTOLAKIS: Can you do that on
11 the fly?

12 MR. SOLORIO: Sure, no problem.

13 MEMBER APOSTOLAKIS: Okay.

14 MR. SOLORIO: Good morning, Dr. Bonaca,
15 and Members of the ACRS Committee. My name is Dave
16 Solorio, and I'm the License Renewal Project Manager
17 at NRR for the Peach Bottom project. I work in the
18 License Renewal and Environmental Projects Program.
19 Before I get started, I want to congratulate you all
20 on reaching your 500 meeting milestone. I appreciate
21 your efforts to review the SER and the efforts of your
22 staff to help prepare for this presentation.

23 In the way of --

24 MEMBER LEITCH: I think you could skip the
25 chronology there on that slide.

1 MEMBER APOSTOLAKIS: Skip it.

2 MR. SOLORIO: I'm not going to go through
3 the first five bullets. I just want to mention that
4 the final inspection was completed in December of last
5 year, and the results were that the application and
6 the materials on site were retrievable and audible,
7 and that they concluded they are implementing the
8 programs as they stated in the license renewal
9 application.

10 This is just a summary of the topics that
11 you all asked to see today, so I'll just go right
12 passed that. Just briefly mention that as far as the
13 previous meeting back in October, I believe a member
14 of the Committee asked were they consistent with ISG
15 on housings? There were three open items related to
16 that, housings, they have various housing aspects, and
17 they were consistent. I just wanted to point that
18 out.

19 There was a concern raised by a Committee
20 Member also at the October meeting about the scoping
21 of non-safety-related equipment issue, you know, where
22 was there one list of what the additional systems
23 were? That list now resides in the section of the SER
24 where we closed out the open item.

25 I was told to speak to the status of the

1 BWRVIPs today. Previously, back in October we gave a
2 detailed presentation on several of the BWRVIP
3 reports, specifically 38, 75, 76, 78, and 86. This
4 table that I have here on the slide is actually
5 extracted from the SER. It provides the status of the
6 reports that we relied upon for the review. I'll
7 point out that there is one report, 76, that the staff
8 has not completed its review. As a result of that,
9 we'll be conditioning the license to require the
10 applicant to either commit to the outcome of the
11 Staff's review of that report, or provide a plant-
12 specific solution.

13 In addition, I mentioned at the previous
14 meeting there was another license condition going to
15 be written up to account for the fact that the
16 integrated surveillance program for license renewal
17 had not been established through the BWRVIP program
18 yet, so it's expected they will be submitting that
19 information this year is my understanding. The Staff
20 will work with them to write an SER, if that's
21 possible. If they can't reach a resolution on that,
22 the license condition will require the applicant to
23 propose a plant-specific resolution.

24 I mentioned the first two license
25 conditions on this slide. That's what I just spoke

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1 of. I'll just mention that the second two are
2 standard license conditions that we issue for all the
3 renewed licenses, which require them to incorporate
4 the summary description of the aging management
5 programs that they provide in the UFSAR supplement
6 into the FSAR proper. And also, that they need to
7 complete their future inspections before the extended
8 period of operation begins.

9 I was asked today to speak to the
10 condition of the Torus, and/or the inspection programs
11 used for the Torus. It was -- a question was brought
12 up during the Subcommittee meeting back in October.
13 Section 3037 of the SER talks about a question that we
14 asked that got to the condition of the Torus. There
15 were inspections performed in 1991. There were pits
16 found at various locations. At the time, it was
17 attributed -- root cause was attributed to the
18 application of the coating, and also the chemistry
19 controls weren't doing everything they should have.

20 The coating was repaired, chemistry
21 program was enhanced. In '97 and '98 they went back
22 and looked again. They found that the repairs had
23 been effective, and the chemistry controls were
24 improving, and resulting in a lesser wear rate, or
25 degradation rate.

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1 The applicant has projected that based on
2 the rate they're seeing now, they will not exceed the
3 minimum thickness requirement for the Torus through
4 the extended period of operation. Inspections of the
5 Torus are performed in accordance with ASME Code
6 Section 11, Subsection IWE. The inspections will, of
7 course, then continue into the future during the
8 current period and the license renewal period. This
9 program was also reviewed by the region during the AMR
10 inspection conducted earlier or in mid-'02.

11 MEMBER POWERS: Did they look at the
12 bellows seals on the --

13 MR. GILLESPIE: I'm sorry. Could you
14 repeat that question?

15 MEMBER POWERS: Did they look at the
16 bellows seals on the inlets to the Torus downcomers?

17 MR. GILLESPIE: I believe that question
18 came up at the last Committee meeting on the bellows,
19 I think --

20 MEMBER POWERS: You didn't get an answer
21 to it again.

22 MR. GILLESPIE: I think we got back to you
23 later saying that the bellows were within scope. Can
24 I get Exelon to tell me if I'm getting that wrong?

25 MR. POLASKI: This is Fred Polaksi of

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1 Exelon. The Torus downcomer bellows are in scope of
2 licensure and were part of the containment boundary,
3 and they are inspected in accordance with the ISI
4 program.

5 MEMBER POWERS: And you have no corrosion
6 on them?

7 MR. POLASKI: No, there's no corrosion, no
8 problems with those.

9 MEMBER FORD: Could I just ask a question
10 on the VIP reports, it's more for information. There
11 are at least three VIP reports to do with cracking
12 rates for stainless steels, nickel-based alloys and
13 alloy steels. I don't see them mentioned on this
14 list, and yet they are fundamental to the ISI
15 frequencies. What are the status on those three
16 reports? And to what degree are they examined?

17 MR. SOLORIO: A member of the staff is
18 going to get up and respond to your question, sir.

19 MS. KAUFMAN: Stephanie Kaufman, NRR. I
20 don't know the specific report you're referring to,
21 but my understanding is these VIP reports reference
22 those documents, and so --

23 MEMBER FORD: Therefore, this assumes that
24 they are correct, those originating documents.

25 MS. KAUFMAN: Well, we reviewed those, as

1 well.

2 MEMBER FORD: Okay. And have they been
3 reviewed by the ACRS? I'm looking at you, Bill,
4 because you would know, liquibase, new alloy steel and
5 stainless steel.

6 MEMBER SHACK: I think we have looked at
7 VIP 14 in the past. I don't think we've looked at the
8 others specifically. You know, we sort of go through
9 -- we sort of sample the VIP reports as we go along.

10 CHAIRMAN BONACA: I believe that we review
11 four at the beginning, and then a number of them were
12 reviewed as we went along, some of them did. But not
13 the whole group.

14 MEMBER SHACK: But specifically whether
15 the cracking rate reports have been reviewed, I don't
16 think they have actually.

17 MEMBER FORD: By the ACRS.

18 MEMBER SHACK: By the ACRS.

19 MR. ELLIOTT: Barry Elliott. At the
20 Subcommittee meeting we reviewed 38, as you said 76
21 and 75. 75 has the safe ends in it, and it would have
22 the stainless steel welds that I think you were
23 alluding to. We discussed --

24 MEMBER SHACK: I think he was thinking
25 more like 14 and 59, which actually have the crack

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1 growth rates.

2 MR. ELLIOTT: But the inspection program
3 would be in this, in 75. And that's based upon the
4 crack growth rates, and those other documents. We
5 reviewed that at the Subcommittee meeting, you know,
6 as part of the Peach Bottom license renewal.

7 MEMBER FORD: I guess my fundamental
8 question is these ones are according to PI and
9 understand are being approved, but those for late
10 cracking kinetics depend on those early reports, 14,
11 29.

12 MR. ELLIOTT: For instance, the 75 when we
13 went through this at the Subcommittee meeting, the
14 frequency of inspection is dependent upon the crack
15 growth rate, and that's how we got the program.
16 That's how the program was developed.

17 MEMBER FORD: Fine.

18 MR. SOLORIO: I was asked to summarize the
19 inspection activities discussed in the SER regarding
20 the diesel fuel oil tanks. They're covered in Section
21 30318 and 3316 of the SER. For aging management, the
22 applicant credited the lubricating and fuel oil
23 quality testing activities program, and they credit
24 inspections performed once every ten years, where they
25 drain the tank and perform multistrong testing at

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1 various locations along the bottom of the tank.

2 Their last inspection in '96 that we
3 documented in the SER come from essentially nowhere,
4 from the thinnest measurement taken. During the
5 October Subcommittee meeting, several questions about
6 the standby gas treatment system were raised that
7 required me to get back to you with some information.
8 I did that in December. I have some additional
9 information to provide today.

10 The aging management of the standby gas
11 treatment is discussed in Section 327 of the SER.
12 Generally, aging effects for the ducting are not
13 expected because the ambient air inside and outside
14 the ducting is considered to be of similar
15 temperature; therefore, there won't be a driving force
16 for condensation. We don't expect there to be leakage
17 into the standby gas treatment system units from the
18 fire suppression nozzles inside of them because
19 there's three series of valves upstream, and it's a
20 deluge system. Since the valves have been installed,
21 there's been no signs showing leakage into the unit
22 from the fire head.

23 There's also buried carbon steel piping in
24 the standby gas treatment system which is managed by
25 the outdoor buried and submerged component inspection

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1 activities. There were no open issues from the
2 staff's review of this program. The condition and
3 records of the standby gas treatment system were
4 examined and the final NRC inspection conducted to
5 support the license renewal rule in December.

6 The inspection confirmed that tech spec
7 surveillances have plant personnel enter the housings
8 to replace filters and inspect the fire deluge nozzles
9 and the filters, and it would be expected that during
10 those entries they would see any presence of aging,
11 since they're able to walk inside.

12 MEMBER ROSEN: Well, did they?

13 MR. SOLORIO: Yes, they have.

14 MEMBER ROSEN: Did they see any evidence
15 of aging since they go inside?

16 MR. SOLORIO: No, sir.

17 MEMBER ROSEN: They saw no evidence of
18 aging.

19 MR. SOLORIO: That's what the inspector is
20 telling me from his review of the records.

21 MEMBER ROSEN: Maybe Exelon could comment
22 on that.

23 MR. FULVIO: This is Al Fulvio from
24 Exelon. Yeah, we do these inspections annually for
25 the filters, and we do them every 18 months for the

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1 fire header spray nozzles in the housing, so we're
2 going into these filters on the average, you know,
3 more than once a year. And we do that, they do a very
4 meticulous inspection of the entire interior of the
5 housing and all the components and structural members
6 in there. And no, we have not observed any evidence
7 of any aging degradation in those inspections at all.

8 MEMBER ROSEN: No condensation, evidence
9 of condensation, no dust, no distress of any kind?

10 MR. FULVIO: NO, that's correct.

11 MEMBER ROSEN: Thank you.

12 MR. SOLORIO: I'll just briefly mention
13 that at the time of the previous Subcommittee Meeting
14 we were trying to resolve the fuse holder issue. The
15 way we resolved it was the applicant committed to the
16 outcome of the interim staff guidance. During the
17 Subcommittee meeting back in October, there was one
18 open item related to top guide beams that we weren't
19 able to resolve with the applicant as of that time.
20 Since then we have been able to resolve the issue.
21 The staff was concerned that multiple failures of the
22 top guide beams could prevent rod insertion, so the
23 applicant is now committed to inspect top guide beams
24 during the time when they inspect the control rod
25 housing guide tubes. They would be doing an enhanced

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1 visual inspection to examine for presence of cracks,
2 and these inspections will begin prior to the initial
3 -- to the beginning of the renewal term.

4 MEMBER WALLIS: How big a crack can you
5 see with enhanced visual examination? What's the
6 smallest crack you can see?

7 MR. SOLORIO: Is it a half mil?

8 MR. BOHLKE: Yeah. This is Bill Bohlke
9 from Exelon. We can see a half mil crack.

10 MEMBER WALLIS: IN length?

11 MR. BOHLKE: Half mil in width.

12 MEMBER WALLIS: In width, but how long is
13 it?

14 MR. BOHLKE: Well, at least a half mil
15 long.

16 MEMBER WALLIS: You can see that with your
17 visual examination.

18 MR. BOHLKE: Yes. WE verify that before
19 the start of every inspection activity, that we can
20 get that appropriate resolution through our cameras.

21 MEMBER FORD: When you approved that top
22 item about the inspection time for top guide beams,
23 cracking of them, what was your rationale for
24 approving that?

25 MR. SOLORIO: Their approach for resolving

1 the open item?

2 MEMBER FORD: Yeah, quantitatively, why do
3 you think that's a good time. It's okay to leave it
4 until then to inspect? And how would you respond if
5 you found a crack on the top guide tomorrow?

6 MR. ELLIOTT: This is Barry Elliott. The
7 issue here -- there are two issues that we're
8 concerned about in the top guide. First, is neutron
9 embrittlement. The second is, radiation stress
10 corrosion cracking. The neutron embrittlement just
11 shows -- results in smaller cracks that will cause
12 failure, but the issue really of concern is the
13 radiated system stress corrosion cracking which could
14 initiate cracks. And we're not concerned about every
15 single top guide beam. We can live with a failed top
16 guide beam, and the control rods could be inserted.

17 The problem here is that in IASEC, we
18 could get multiple failures, that there's a common
19 cause here for common mode of failure, so we've got to
20 -- we looked at it and we said well, we're going to
21 look at the areas that have the highest effluent and
22 concentrate our inspection there so that we could look
23 and see if there is going to be a common cause problem
24 here of radiation or system stress corrosion cracking.
25 That's how we got to 10 percent. WE got the location

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1 because that's a high effluent location. And the
2 period of inspection, we decided would be as part of
3 what -- we already have a program for the CRVH guide
4 tubes, so we incorporated that into the program, so
5 that both inspections can be done at the same time.
6 That was our thinking here. And to look for the
7 common cause failure is the issue here.

8 MR. SOLORIO: I believe a past concern
9 that the Subcommittee for license renewal has
10 articulated is a belief the staff will be facing a
11 significant challenge in the future to verify future
12 commitments are implemented prior to the renewal
13 period, given there will be a large number of plants
14 entering that around the same time.

15 As you heard from Dr. Kuo earlier, we
16 created Appendix D in the SER. I wanted to add that
17 we're also attaching this list of future commitments
18 to the post approval site inspection for license
19 renewal inspection procedure to assist the staff in
20 the future with this task.

21 I know you've already heard a lot about
22 the event, and I'm just going to provide some
23 information from the NRC side. The initiator, we
24 believe, as the applicant stated, failure of a
25 non-safety-related active component, the circuit card,

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1 which led to the main steam bypass valves going open,
2 which led to several subsequent ESF actuations, which
3 resulted in the reactor scram. There were also
4 several items of equipment that did not function as
5 expected, such as the damper, the main steam bypass
6 valves, the RIC1 pumps, and they contributed to
7 challenging the operators recovering from the event.

8 As you know or you may know, there was a
9 special inspection conducted in the circumstances of
10 this event in accordance with NRC Management Directive
11 8.3, Incident Investigation, and our staff, event
12 staff and Operating PM provided me with some
13 information on this event, and the LER also provides
14 significant information. But because the inspection
15 report isn't out yet, I wasn't able to review that,
16 but we have the Senior Resident Inspector for Peach
17 Bottom here with us today, who was also the Team
18 Leader for the special inspection.

19 Based on my review of the LER, I conclude
20 there were no failures of passive components. The
21 information I've been able to gather regarding the
22 equipment performance challenges, you heard a lot
23 about the card failure. We discussed that in very
24 good detail. I don't have anything to say different
25 about that.

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1 I understand now the damper failure was
2 attributed to an actuator not functioning properly to
3 close the damper. Earlier discussions talked about
4 how the problem was previously known of in a prior NRC
5 inspection report in 2206 we documented a finding that
6 the applicant wasn't, or that the licensee wasn't
7 doing preventive maintenance on their dampers. So as
8 you heard from someone from the utility, they hadn't
9 gotten around to actually starting to do it such that
10 could have prevented the failure of this one that
11 didn't work.

12 As you heard, the failure of the RICI pump
13 was attributed to a design change during the post
14 modification testing, and the main steam bypass valve
15 also was a failure to perform preventive maintenance
16 on the actuator, so you know, it's clear that if they
17 had -- well, it's not clear, but you would surmise
18 that if they had been performing preventive
19 maintenance on these two components, you would have
20 expected them to perform as required.

21 It's my understanding the applicant's
22 corrective actions are underway to do the preventive
23 maintenance activities, to ensure these similar types
24 of equipment are ready to perform their function when
25 called upon. Once they enhance their program, of

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1 course the license renewal rule requires them to carry
2 their current licensing basis forward, so hopefully
3 these programs will be more useful in the real term.

4 MEMBER POWERS: Let me ask you this
5 question. You've got a plant, it's undergone some
6 change in the way it operates, still learning that
7 obviously having some challenges are faced in getting
8 all these programs that they're required to carry out,
9 carried out, including the preventive maintenance
10 program. Now they're making commitments to you to add
11 some additional programs in, and increase the burden
12 on their staff. Is it fair to impose that additional
13 burden on them at that time, or should we wait until
14 they've had a chance to work out all these changes
15 they're making in the plant now? And apparently,
16 additional changes that they're planning to make in
17 the future. Can they carry out these additional
18 programs with the efficiency and the effectiveness
19 that you think they ought to do?

20 MR. SOLORIO: So if I understood your
21 question, why should they be implementing these
22 activities for license renewal now on top of what
23 they're trying to improve now? Because maybe it's --
24 okay. Well, it's really up to the applicant to decide
25 when they want to implement these activities, you

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1 know. Albeit, they have be doing them before the end
2 of the renewal period, so the rule doesn't allow us to
3 force them to do it at a particular time, but I
4 understand they have demonstrated to you they had some
5 challenges today, but I think it's much better if they
6 start doing things now, because they're going to
7 provide a lot of baseline data that they're going to
8 be able to use for the renewal term. So while they,
9 as you suggested, may have trouble getting some of
10 these programs right, I think the benefit outweighs
11 the negative.

12 MEMBER POWERS: I guess I'm more concerned
13 that programs that they have now may suffer because
14 they're diverting the sources and attentions to these
15 new things that you're --

16 MR. McMURTRIE: Dr. Powers, Tony
17 McMurtrie, Senior Resident Inspector at Peach Bottom.
18 If I can speak here, and I'm not going to speak
19 specifically for Exelon, but I would say these issues,
20 these aging management commitments are going to be
21 added into their normal program and processes which
22 they already have established, so as they show here --

23 MEMBER POWERS: Yeah, but they're not
24 getting them out very well.

25 MR. McMURTRIE: And I would say that this

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1 is not going to be any more of a significant challenge
2 than it was for the PECO Corporation to implement all
3 of the fleet-wide Exelon processes and procedures that
4 they have just recently gone through in bringing the
5 fleet to a common standard that they're now using.
6 And I welcome Exelon to, you know, speak as to why
7 they think or would not think that they could add
8 these items into their processes and be additional
9 challenge with that. I don't see it as any more of a
10 challenge than any of the other things that they've
11 got ongoing at this current time.

12 MR. BOHLKE: Dr. Powers, Bill Bohlke.
13 What we're doing to ourselves in trying to change our
14 culture to be able to run at these high capacity
15 factors is actually a lot more arduous, and the
16 additional requirements being layered on by these
17 aging management programs, so overall I believe that
18 we'll be able to accommodate them, or we'll make the
19 appropriate adjustments in resources to be able to
20 accommodate them.

21 MEMBER POWERS: I guess I wouldn't have
22 expected any different of an answer. I'm struggling
23 to know how I gain that same confidence.

24 MR. McMURTRIE: Can I just --

25 MEMBER POWERS: And again, it has nothing

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1 really to do with the aging management programs. What
2 I'm more concerned about is the current programs may
3 suffer, and consequently, the safety of the plant may
4 suffer.

5 MR. McMURTRIE: Well, I can tell you, Dr.
6 Powers, that we look at through our reactor oversight
7 program. I mean, you know, we're there doing the
8 inspections, doing the routine inspections. If there
9 are issues, if they're starting to be safety-
10 significant items out there, there's findings that are
11 identified, and those go forward, and it's handled
12 within ROP.

13 MEMBER POWERS: Well, to be quite blunt,
14 you did not identify that they failed to do some
15 preventive maintenance.

16 MR. McMURTRIE: That is correct. I mean,
17 we didn't -- until they started happening, let's say
18 dampener failures that they had, you're right, but we
19 did see the trend of those, identified those forward
20 to the licensee. You know, we look at the
21 surveillances, the other things that they have, you
22 know, but we are focused too on the risk-significant
23 and the safety-significant items there at the plant.
24 Many of these items that they had there were not as
25 risk-significant, for example, the closure of the

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1 turbine bypass valves, where it's also identified that
2 they were not performing preventive maintenance on
3 those actuators.

4 MEMBER ROSEN: Well, as long as you
5 brought up the Reactor Oversight Process, that was one
6 of the questions we asked to have some view from the
7 Staff about where Peach Bottom units are in the ROP.

8 MR. McMURTRIE: ROP-wise they're in the
9 regulatory response ban, which means that they have
10 one white finding now in the emergency planning arena.
11 And everything else is green, so they're in the
12 regulatory response column of the action matrix.

13 MEMBER ROSEN: So the ROP gives us no
14 insight into issues that may be relevant to the
15 license renewal right now.

16 MR. McMURTRIE: Well, I would say that the
17 ROP tells you that they do not have significant
18 degraded safety-related or risk-significant components
19 that are out there that's been identified in the
20 process.

21 MEMBER ROSEN: Okay.

22 MR. SOLORIO: Well, as they go forward in
23 their, under the ROP if there are procedure problems
24 that reach a certain significance level, then the ROP
25 would require --

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1 MEMBER ROSEN: Yeah. I'd want to restate
2 what I said before. Not that it gives us no insight,
3 it just does not raise a signal to us that there are
4 some issues that are relevant to the decision on
5 license renewal.

6 MR. SOLORIO: Other than perhaps you might
7 be able to say, as you've been trying to say, some of
8 the members have been trying to say that, you know,
9 their performance -- if their performance isn't good
10 in implementing the procedures, then you need to ask,
11 you know, how far does that go.

12 MEMBER APOSTOLAKIS: ROPs aren't going to
13 tell you that. The ROP is looking at results.

14 MR. SOLORIO: Right, but you're looking at
15 them because of a risk-significance. And then you
16 start looking into their corrective actions, and what
17 was the cause.

18 MEMBER APOSTOLAKIS: Silence does not mean
19 agreement. Okay?

20 MEMBER LEITCH: Anything -- have you
21 finished your presentation, David?

22 MR. SOLORIO: That concludes my
23 presentation.

24 MEMBER LEITCH: Very good.

25 MR. McMURTRIE: If I can add one other

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1 thing.

2 MR. SOLORIO: Yes, Tony, please.

3 MR. McMURTRIE: I would add that we did
4 find during this inspection that there were some
5 low-tier issues that they were not identifying in
6 their corrective action program. We had identified
7 that previously. We do routine problem identification
8 resolution inspections, and we have identified the
9 trend of this before. I will add that they -- I think
10 they issued a water shed CR, what I'll call water shed
11 CR in January of 2003, where they identified that in
12 a corrective condition report, that the maintenance
13 personnel were not writing CRs for corrective
14 maintenance issues that were unexpected that they
15 found out there in the field, so they're going back.
16 They're going to look to retrain and change their
17 processes and programs to make sure that the folks are
18 doing this. So we think that on some of these low-
19 tier issues that you saw here, that the station was
20 not doing a real good job at tracking and trending
21 those issues, and that may have been a big contributor
22 for some of the low-tier issues that they identified
23 during this scam.

24 MEMBER APOSTOLAKIS: The next item on the
25 agenda is the Reactor Oversight Process. Will you be

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1 here?

2 MR. McMURTRIE: I will stay, yes.

3 MEMBER APOSTOLAKIS: Okay.

4 MEMBER LEITCH: Okay. Thank you, Tony.

5 Dr. Kuo, do you have any concluding remarks?

6 MR. KUO: Well, thank you, Mr. Leitch.

7 This concludes the Staff's presentation. According to
8 my note here, we will have a take-away action, that is
9 the commitment to come back to the Committee to talk
10 about events in general. This will be probably in the
11 next one, two, or three months time frame.

12 MEMBER LEITCH : I would like to thank the
13 Staff for their presentation, as well as thank Exelon
14 for their presentation, and turn it back to Dr.
15 Bonaca.

16 CHAIRMAN BONACA: Okay. Thank you. And
17 now we'll take a break until a quarter of 11.

18 (Off the record 10:32:46 - 10:49:02 a.m.)

19 CHAIRMAN BONACA: Okay. We are getting
20 back in session, and now the next item on the agenda
21 is Reactor Oversight Process. And Mr. Sieber is the
22 -- will take us through his presentation.

23 MEMBER SIEBER: Cognizant Member, right?
24 Thank you, Mr. Chairman. The Reactor Oversight
25 Process is relatively young, and I would say a still

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1 evolving process, whereby the Commission seeks to get
2 insights into the performance of individual licensees
3 based on performance indicators and the risk-
4 significance of incidents and violations that may
5 occur at their plant, so as to make a judgment as to
6 how or if the Commission or the Staff should respond,
7 and at what level. And you will recall that we had a
8 multitude of meetings and a presentation in December,
9 which is now 15 months ago, before the Commission.
10 And I'd like to point out to you that the
11 documentation, you've received all these letters from
12 time to time, but the documentation is Tab 3 in your
13 book, which is -- and the most recent response from
14 the staff is on handwritten page 5. And I think that
15 was a easy to understand response, but I'd like to go
16 through the fact that we have had a number of letters
17 on this subject, including an SRM which isn't
18 addressed to us, but we will attempt to respond to.
19 And our first letter is October 12th, 2001, which was
20 a lengthy letter, and pointed out a number of
21 deficiencies.

22 The Staff, under the signature of -- or
23 over the signature of Dr. Travers, responded but did
24 not respond in a way that fully accepted every piece
25 of advice that we gave them. And so there is another

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1 series of letters back and forth that identified some
2 more important of those issues which occurred within
3 the next two or three months.

4 We have had a couple of Subcommittee
5 meetings on this process, and some other meetings on
6 the record between our staff and their staff, and
7 they've had a reorganization change in the process,
8 which complicates things, but actually hasn't impeded
9 the process.

10 The most important document that I would
11 like to point out is a December 20th, 2001 document,
12 which is a Staff Requirements Memorandum that was
13 prepared by the secretary based on our December 5th,
14 2001 meeting with the Commission, where we had four
15 topics and the bulk of the Staff Requirements
16 Memorandum addresses itself to the Reactor Oversight
17 Process.

18 We have all seen this, and it's been
19 copied and recopied so many times now that it's almost
20 illegible. On the other hand, I would point out that
21 the cogent paragraph says, and I quote, "The Staff
22 with ACRS input should provide recommendations for
23 resolving in a transparent manner" - and I'm not
24 exactly sure --

25 MR. SATORIUS: We've got it right there.

1 MEMBER SIEBER: Yes, I know. We'll, I'm
2 going to read it anyway. I notice in your latest
3 letter you address the "transparent manner" issue,
4 between apparent conflicts and discrepancies between
5 aspects of the revised Reactor Oversight Process that
6 are risk-informed, for example, the significance
7 determination process, and those that are performance-
8 based, for example, the performance indicators. And
9 that was the highlighted portion of the second round
10 of letters that followed our initial letters on the
11 Reactor Oversight Process.

12 And with that, our last meeting of the
13 Subcommittee was about six months ago, and so now
14 we're going to get an update where the Staff will tell
15 us where they are, what they have already done, what
16 they plan to do in advance, and hopefully provide us
17 with sufficient information to draft a response from
18 our viewpoint to this SRM. I presume that the Staff
19 will respond on its own. You do an annual report on
20 the ROP, and I presume that annual report will be your
21 response to this SRM, or perhaps some other document.
22 You can tell me which way it is you're going to do it.

23 So with that, what I'd like to do is
24 introduce to you Mark Satorius, who will make the bulk
25 of the presentation. And so, Mark, go ahead.

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1 MR. SATORIUS: Thank you very much, and
2 thank you, Committee Members. Before we -- I'm going
3 to turn it over to Ron Frahm here in just a second,
4 and he's going to outline some of the -- a little bit
5 more detail what's already been outlined, and provide
6 some Staff perspectives, but he's also going to
7 outline what we think is the most important thing, and
8 those are the Committee or the Subcommittee concerns
9 that we feel have not completely been resolved. And
10 we want to share with you the Staff's view on what our
11 position is on those throughout this presentation.
12 But before I turn it over to Ron, Bill Borchert, who
13 is the Acting Deputy Director of the Office of Nuclear
14 Reactor Regulation is here with us today, and he's at
15 a side table there. And I think, Bill, you had wanted
16 to start the meeting with a few remarks yourself.

17 MR. BORCHERT: Yeah. Thanks, Mark. Staff
18 and nearly every stakeholder that we engage with
19 agrees on one thing about the Reactor Oversight
20 Program, and that is that it's an improvement over the
21 previous inspection program, and especially the SALP
22 Program, Systematic Assessment of Licensee
23 Performance. But there are three, in my view, very
24 significant aspects of the Reactor Oversight Program.
25 And the first of those is the manner in which the

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1 Reactor Oversight Program was developed, the
2 stakeholder, public, industry involvement in the
3 creation of that program. And in the design of the
4 Reactor Oversight Program that has eventually been
5 implemented, and in the decision making process for
6 the many factors that led into that design.

7 The second is the ongoing transparency of
8 the process, and the accessibility of the information
9 to the public. This new Reactor Oversight Program is
10 far more transparent, and predictable than the old
11 Senior Management Meeting SALP Program, which Graham
12 Leitch can give you more details on than even I,
13 probably. But I think it's agreed to that anyone can
14 look at the input going into this program and arrive
15 at the same answer, and understand which column of the
16 action matrix a plant would be in, and why the NRC is
17 taking the regulatory actions that it is.

18 The third, and perhaps the most important
19 aspect of the new program is that it's a dynamic and
20 living process, that it is by no stretch of the
21 imagination perfect today. It wasn't anywhere near
22 perfect several years ago when we first put it into
23 practice. I think it's better today than it was three
24 years ago, and three years from now it'll be even
25 better than it is today.

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1 The ACRS has focused on several issues
2 that we think are very good examples of what makes the
3 current process not perfect. If we could solve them
4 quickly and easily, we would certainly do that. The
5 problem is, they don't have easy solutions. I agree
6 with the comments that the Committee has raised, that
7 if we can fix these, it will make the process better.
8 But in order to effect those changes, I believe it's
9 equally important that we do it in the same kind of
10 open transparent manner that we did during the initial
11 creation, so that that almost guarantees the change
12 will not be fast. But nonetheless, these are very
13 valid issues that the Staff wants to continue to work
14 on. We thank you for you input, and I'll go back to
15 Mark and Ron.

16 MR. SATORIUS: Okay. Thanks, Bill. And
17 with that, Ron is going to, as I mentioned earlier,
18 give a short synopsis of kind of how we ended up here
19 today, and to focus more than anything else probably
20 on those matters that we believe are still issues, and
21 still issues to be discussed and resolved between our
22 understanding of the Subcommittee's view and our own
23 views. So, Ron, would you go ahead.

24 MEMBER SIEBER: Let me interrupt this for
25 a second. One of the reasons why this process of

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1 making these changes is slow is because there is a lot
2 of stakeholder involvement. You have licensees and
3 investment analysts, and all kinds of people who look
4 on a regular basis at the ROP process, so making a lot
5 of changes, particularly ones that involve fundamental
6 theoretical principles, I think will cause some
7 confusion amongst those licensees and members of the
8 public, so I can understand why you want to be very
9 thorough and very careful, and move forward
10 deliberately so you can bring the stakeholders along
11 with you. And I think that's something we need to
12 keep in mind on this Committee, that we can't make and
13 demand instant changes and expect them to occur just
14 because the inertia of the process in the involvement
15 of all these stakeholders. So with that --

16 MEMBER ROSEN: I'd just like to go ahead
17 and make one point though, and that is that it is not
18 just the Subcommittee's views. I think you're dealing
19 with the Full Committee's insights.

20 MR. SATORIUS: I understand. I guess I
21 was referring to the fact we've met with the
22 Subcommittees and we captured a number of those views,
23 but I'd like to point out just before we go on, that
24 that's a very, very good point. And we're living
25 through that currently, and I'll talk about it a

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1 little bit more later on in the presentation as we
2 attempt to risk- inform the performance indicator that
3 measures unavailability and unreliability for the
4 mitigating systems cornerstone. And we're just ending
5 a pilot program. I believe the data collection ended
6 in February, and we'll be analyzing the results of
7 that, but that was over two years in the making so it
8 -- as we risk-inform rigorously some of these
9 performance indicators, it is a daunting effort. So,
10 Ron, would you go ahead, please.

11 MR. FRAHM: Sure. Good morning. Thank
12 you, Mark. As many of you are aware, I'm Ron Frahm,
13 and I've been the Staff Lead in coordinating with the
14 ACRS to try to come to a common understanding, and
15 hopefully resolution on certain issues and apparent
16 inconsistencies --

17 MEMBER APOSTOLAKIS: You got this in
18 management, or --

19 MR. FRAHM: I'm not sure why I got this
20 assignment. I'm still trying to figure that one out.
21 But what I'd like to do this morning very briefly is
22 just recap where we've been, and our understanding of
23 what the Committee's remaining concerns are based on
24 all of our previous discussions and letters.

25 As Mr. Sieber pointed out, we've met with

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1 the Subcommittee a few times. WE met in September,
2 2002 to discuss our plans to address the SRM that Mr.
3 Sieber quoted regarding apparent conflicts between
4 aspects of the ROP that are risk-informed, and those
5 that are performance-based. We then provided a
6 detailed written response in December, 2002, that we
7 believe specifically addressed those concerns, that
8 were noted during that September briefing, as well as
9 in the previous ACRS letter of February, 2002. Then
10 we met again with the Subcommittee in January of this
11 year to address those specific concerns as detailed in
12 the December, 2002 letter, and to give our status on
13 those issues, and our position.

14 That was actually an all-day briefing and
15 a significant portion of that briefing involved
16 bringing in subject matter experts from several of the
17 different cornerstones across the ROP to discuss
18 examples of greater-than-green findings, and
19 performance indicators, and to help demonstrate the
20 basis for why these thresholds were what they were,
21 and the resulting regulatory response associated with
22 these thresholds.

23 Needless to say, we don't intend to go
24 into the level of detail today that we have in these
25 previous Subcommittee briefings. Instead, we wanted

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1 to just summarize our understanding of the open
2 issues, and the continuing concerns of the ACRS to the
3 best that we understand them, and our response to
4 those issues. So this first slide represents a
5 summary of the issues that we developed as a group
6 based on pouring over the previous transcripts from
7 the meetings, and the previous letters between the
8 ACRS and ourselves.

9 First, there are elements of the ROP that
10 are more risk-informed than others, such as those in
11 the reactor safety area that are based on PRA
12 analyses, and others that are more performance-based,
13 such as those in the emergency preparedness, public
14 radiation safety, occupational radiation safety, and
15 safeguards areas. And these elements are not
16 quantifiably equivalent - that's quite a phrase -
17 based on an actual value. We don't have a number that
18 we can compare Apple 1 to Apple 2 and say that they're
19 definitely equitable. We've been struggling with that
20 since day one, and we continue to do the best we can
21 to make them equitable.

22 MEMBER POWERS: I mean, it seems to me
23 that the incongruity among the various levels within
24 cornerstones, some of which have quantitative measures
25 associated to it, some of which have performance

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1 measurement is more striking than that. I mean, I was
2 at one plant in which the plant vice president was a
3 very articulate fellow, and said oh, my God, you can
4 have all of these plant scrams, but God help you if
5 somebody fails to show up for his briefing on
6 emergency preparedness. I mean, the two just don't
7 seem to balance, even on an apples and oranges basis.

8 MR. FRAHM: Well, we have competing
9 priorities within the ROP, and we try to be as risk-
10 informed as we can be, where risk insights are
11 available. But at the same time, if you're living
12 three miles outside of a site, you know, how do you
13 explain to that person that it's more important that
14 a pump works, for instance, in the mitigating systems
15 area than it is that you will be able to evacuate the
16 area in case of an emergency? I mean, these are
17 equally important in protecting public health and
18 safety with regard to how we respond to these issues.

19 MEMBER APOSTOLAKIS: But then if you do
20 that though, you're not risk-informed any more. See,
21 that's the perennial problem here, you know. In one
22 case, in the case of emergency evacuation, you assume
23 that events that are extremely unlikely have occurred,
24 and you have to evacuate. In the case of the pump,
25 you're talking now about the event itself, you know,

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1 that you may actually cause an initiator. So from the
2 risk perspective, you should clearly worry more about
3 the pump. Right? And this agency itself, when it
4 allocates in other context risk, clearly we consider
5 preventing core damage frequently roughly to be a
6 thousand times more important than the containment.
7 We have a goal of 10 to the minus 4 for core damage
8 frequency, and we have a goal of .1 for the
9 containment, and that's risk-informed. It's a policy
10 issue and so on, so this is the dilemma here. I mean,
11 are you trying to please the guy who lives near the
12 plant, or are you trying to be risk-informed?

13 MR. SATORIUS: We're trying to approach it
14 in a balanced manner. WE think that we need to look
15 at the person that needs to -- that lives near the
16 plant. That's our public. They have a certain stake
17 in this to understand how safe the plant is being
18 operated. But this all gets back to, and I was going
19 to address this just a little bit later, but it all
20 gets back to irrespective of whether a cornerstone is
21 -- the thresholds are established by a risk-informed
22 tool or a performance-based tool, the importance is
23 the threshold. Once the threshold is established,
24 that simply tells the staff to go and do certain
25 things, and to learn more about the event, to do

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1 supplemental inspections, that provides us further
2 information so that we can better characterize it, and
3 take steps that are necessary from that perspective.

4 MEMBER APOSTOLAKIS: Yeah, but another
5 thing that you told us last time we met was that in
6 areas where there is very little risk information, you
7 really rely on domain experts in this case, for
8 example, for the sirens you had people who are
9 experts, emergency planning and preparedness. And
10 those people don't necessarily think in a risk-
11 informed way. I mean, they --

12 MR. SATORIUS: That's true, but we asked
13 those -- we posed the question to those expert panels.
14 We said given this set of circumstances, whatever the
15 set of circumstances may be, the number of sirens that
16 work or don't work, what would be the appropriate
17 regulatory response from an inspection perspective?
18 What type of response do you want from the Staff so
19 that you can learn more about this event, so that the
20 Staff can go forward and take the appropriate actions.
21 That was the question that was posed, because the
22 purpose of the action matrix and the purpose of the
23 thresholds are to generate staff response at the
24 appropriate level, so when we empaneled these expert
25 panels that was the tasking, that was the charter. We

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1 want you folks to sit down and figure out what level
2 of regulatory response we should have for these
3 performance-based issues, so that was the charter.
4 And that was the reason why they came up with the
5 percentage of sirens or whatever performance-type
6 activities we use for those performance-focused
7 cornerstones.

8 MEMBER SIEBER: I guess I shouldn't try to
9 help the Staff along, I guess. On the other hand --

10 MR. FRAHM: That's okay.

11 MEMBER SIEBER: On the other hand, having
12 worked in power plants for many years, from the
13 standpoint of the public, the public sees the things
14 that they do as far more important than your safety
15 injection pump. And the politics of all this gets
16 involved in that too. You've got the governor of the
17 state who's trying to making decisions as to whether
18 there is a state of emergency or evacuation. And
19 because of that, there are maybe artificial, but
20 nonetheless, they're real to the people we're bound to
21 protect, which is the general public. And they see
22 things in a different framework than the risk
23 implications would imply. And so I can sort of
24 appreciate why there is great emphasis on things like
25 the ODCM requirements for -- and also emergency

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1 planning and operating sirens, and classifying events,
2 and evacuation plans, and all of those plans, because
3 that's the way the public sees it. And they don't see
4 it in risk metrics.

5 MEMBER APOSTOLAKIS: But then the agency
6 though goes back to the significance determination
7 process.

8 MEMBER SIEBER: That's right.

9 MEMBER APOSTOLAKIS: Determines this
10 action based on risk, so we're trying to have it both
11 ways.

12 MR. SATORIUS: I'm not sure I understand
13 what you just said, George, but I think you said that
14 we'll get a preliminary color based on a performance
15 indicator that is performance-based, and then we'll
16 turn around and try and risk-base that decision. And
17 we don't try and do that, you know. We have
18 cornerstones that either have risk-informed inputs to
19 determine what the risk, or what the threshold should
20 be, and we have those that are performance-based. And
21 we don't -- we acknowledge that there's a clear divide
22 between the two, and we never try and mix the two
23 based on a specific issue.

24 For example, the siren issue. That, as
25 long as the performance indicator, and that type of

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1 review criteria remains in place, that will always be
2 performance-based until we can either figure out a way
3 to risk-base it, or I'm sorry, risk-inform it, or we
4 figure out a way or we don't, and we keep it
5 performance-based. We never mix the two.

6 MEMBER APOSTOLAKIS: But the action matrix
7 does mix them.

8 MR. SATORIUS: That's true, but the action
9 matrix only tells the staff at what level of
10 engagement we should go out and engage the licensee.
11 Now for those that are risk-informed, for those
12 cornerstones that are risk-informed, we have risk
13 insights that talk towards CDF and other thresholds
14 that tell us when we should go out and engage. But
15 when we don't have those risk insights, based on
16 expert panel inputs, we decide the level of staff
17 involvement, at what point in time based on X number
18 of sirens not being able to function do we want this
19 staff involvement, so you're right, but we do have two
20 inputs, both performance-based and risk-informed. But
21 the output it staff response.

22 MEMBER APOSTOLAKIS: And how does that
23 help?

24 MR. SATORIUS: Because the staff response
25 then is typically in the form of meetings with

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1 licensees, additional supplemental inspections
2 depending on what the color of the findings are. And
3 those supplemental inspections allow us to gather
4 additional information so that we can further frame
5 the issue and decide whether the licensee is
6 responding in a manner that is acceptable or
7 unacceptable such that additional resources that are
8 needed to be applied can be so applied.

9 MEMBER ROSEN: The way I see it is you say
10 to the applicant, you've just broke two of our
11 thresholds. One of them was in Universe 1, risk-
12 informed, and the other is in a whole other universe,
13 Universe 2, which is performance-based. It's not good
14 to break our thresholds in any of our universes, so
15 come talk to us about why you broke these two
16 different thresholds in two universes.

17 MR. SATORIUS: Yeah, that's right. You
18 nailed it.

19 MEMBER ROSEN: They're not the same
20 though. They're not the same universes, and the
21 metrics -- if you think about each universe
22 differently, as Jack was leading us to earlier,
23 saying well this Universe 2, let's just say emergency
24 preparedness, there you're looking at it from outside
25 in, let's say, from outside the plant in, and worrying

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1 about what the public, and how they perceive it, and
2 their needs. In Universe 1, which is now the
3 risk-informed, you're looking at from inside the plant
4 out, thinking about sequences and analysis, and core
5 damage frequency, and LERF and all of that. Two
6 different universes looked at from two different
7 directions, but the Staff response is always, Mr.
8 Licensee, come here and tell us what you're doing
9 about the fact that two of your -- the universes that
10 you're responsible for you have created tracks on the
11 wrong side of the threshold.

12 MR. SATORIUS: That's true, but it's
13 important to point out that we all understood as we
14 put together ROP in the beginning that notwithstanding
15 the fact that there would be these two universes, that
16 we would treat them from a response perspective as the
17 same, that the staff would, irrespective of whether
18 they were risk-informed, or performance-based, the
19 staff from our reaction and to go out and ask the
20 licensees to tell me why you're outside of your
21 universe, the reaction would be the same. The
22 response would be the same.

23 MEMBER ROSEN: And doing that, is not a
24 matter for technical analysis, in my view. Doing that
25 reflects your value system, value system of the

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1 agency.

2 MEMBER APOSTOLAKIS: Actions always
3 reflect values, yes.

4 MS. CARPENTER: Well, it would reflect the
5 value system of all the stakeholders because there's
6 thresholds at which the agency responds, set by a
7 number of stakeholders, a wide variety of
8 stakeholders.

9 MR. SATORIUS: It was at the last
10 Subcommittee briefing that -- and I don't recall which
11 one of the Subcommittee members it was, but an
12 observation that was made was that, you know, that the
13 staff may not always have equal findings as a result
14 of PRA, but these yellows in two separate universes or
15 cornerstones, by going and looking at those, they give
16 you perspectives on licensees' performance and their
17 safety perspective. And from that perspective, we
18 were gaining information so that we could
19 appropriately regulate these facilities.

20 MEMBER LEITCH: The thing I think we have
21 to be aware of is that licensees are operating with
22 limited budgets, and this process is influential to a
23 great extent, and where those limited funds can be
24 spent. And I know that a number of licensees are
25 spending large amounts of money to completely replace

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1 siren systems, for example, we've been talking about
2 sirens. And I'm not by any means saying that money is
3 ill-spent. I think it's good that they're doing that,
4 but I guess my question is always, are we skewing the
5 appropriations in that area at the expense of perhaps
6 more safety-significant improvements elsewhere?

7 MR. SATORIUS: I think what you're
8 pointing out is the classic dilemma, that we are faced
9 as regulators that we must balance. Those areas that
10 we focus or ask, or regulate licensees to focus their
11 investments upon. And we think to large part, we're
12 not too far off the mark. It's one of our strategic
13 - - it's one of our very major goals is reducing
14 unnecessary regulatory burden, and that falls right
15 into that category.

16 MEMBER LEITCH: Yeah. And it's a
17 difficult decision to make.

18 MEMBER SHACK: Well, on our standard hobby
19 horses, let me get back to the one that this is to
20 evaluate performance. It's not to evaluate plant
21 safety. I don't even like setting the thresholds for
22 the risk-informed ones the way we do it. That's how
23 we wend up with the yellow/red thresholds for the
24 scram..

25 CHAIRMAN BONACA: Because it doesn't make

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1 sense.

2 MEMBER SHACK: You look at one indicator,
3 and you drive that sucker off to some Delta CDF, and
4 you end up with a result that you don't like. I
5 personally would feel comfortable if all of the
6 thresholds were set on an expert judgment performance-
7 based criteria.

8 MEMBER SIEBER: Well, that goes back to
9 the old SALP system then.

10 MEMBER SHACK: Read on them ahead of time,
11 they're quantitative and they're defined.

12 CHAIRMAN BONACA: Because if you did it in
13 fact on an expert system, you would have a means of
14 using the same meter for all of them. That's an
15 expert system, and it's a common one. You can't use
16 --

17 MEMBER APOSTOLAKIS: See, that's what
18 bothers me.

19 CHAIRMAN BONACA: You cannot use the risk-
20 informed one for all of them because you cannot apply
21 that emergency -- I mean, you can make certain
22 considerations. For example, that yeah, it's a very
23 unlikely event, but of course, if you have a general
24 emergency and you didn't have your emergency plan
25 working, you may have, you know, a lot of

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1 consequences, very significant and then the political
2 issues that Mr. Sieber was talking about. But the
3 fact is yes, I mean you could have a common meter for
4 this, but it would have to be an expert judgment-
5 based.

6 MEMBER APOSTOLAKIS: See, the mixing of
7 risk-based thresholds with performance, that has
8 bothered me from day one.

9 MEMBER WALLIS: Why does it bother you?
10 I was shocked.

11 MEMBER APOSTOLAKIS: Because they're two
12 different things.

13 MEMBER WALLIS: No, but we have a program
14 in which our students take courses in engineering and
15 they take courses in the business school, and we give
16 them a degree. We just accept that if they get As in
17 the courses in one or the other, they're equivalent.
18 Who cares?

19 MEMBER KRESS: No, no, no. Except in this
20 case they're not, because when you ask for developing
21 a threshold in risk-based space, you ask a different
22 question.

23 MEMBER WALLIS: No, you ask when do you
24 take action? That's the only thing that matches.

25 MEMBER KRESS: No. You ask what effect

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1 does it have on CDF or LERF.

2 MEMBER WALLIS: No.

3 MEMBER KRESS: That's what they do.

4 MEMBER APOSTOLAKIS: That's what they do.

5 MEMBER KRESS: But when you do it in a
6 performance-based you ask the correct question, which
7 is at what level would I take action? And I think
8 that's the whole problem. I mean, you're asking the
9 wrong question in the risk-based --

10 MR. SATORIUS: But I would offer that
11 we're -- I would agree with you on the one hand that
12 we're asking the question in a risk-informed manner
13 that would beg the answer, at what Delta CDFs do you
14 trigger? But you have to look a step beyond, because
15 the step beyond is at what -- what does that mean?
16 What level of staff involvement and follow-up
17 inspections does that mean, that's where the two come
18 back together, because the whole purpose of the action
19 matrix is to do just that, to arrive at the
20 appropriate staff response.

21 CHAIRMAN BONACA: But let me just give you
22 a good example, I think. If this system had to go in
23 place in 1990 rather 2001 or 2, I daresay that the
24 trip threshold between, you know, from green would
25 have been probably six scrams a year, because it was

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1 the average -- and through PRA you would have
2 determined that that's not significant risk associated
3 with that. I think that the number is down to three
4 or whatever it is, one, two, three, because the
5 average performance is there, and is below that. So
6 to some degree, I mean you have to use judgment,
7 expert judgment and you have faced -- you have looked
8 at the actual situation.

9 MEMBER KRESS: Yeah. Once again, what you
10 really should be looking for is a detrimental change
11 in performance. And that not necessarily does not
12 necessarily mean something causes a CDF change so
13 much. That's where we're going wrong.

14 MEMBER APOSTOLAKIS: Let's take
15 Davis-Besse. I mean, you're still in the process, I
16 understand, to determine the color, or have you done
17 that?

18 MS. CARPENTER: There's a preliminary
19 significance determination out that it is
20 preliminarily red.

21 MEMBER APOSTOLAKIS: It's preliminarily
22 red. So that depends a lot on the strength of the
23 liner, doesn't it? I mean, if it's a risk-informed
24 thing, you have to decide what is the probability that
25 I will have core damage. Right?

1 MR. SATORIUS: I have to say that I'm not
2 familiar with the SDP, but what you're saying is
3 absolutely right.

4 MEMBER APOSTOLAKIS: Okay.

5 MR. SATORIUS: That would have to be part
6 of the analysis.

7 MEMBER APOSTOLAKIS: So let's say that the
8 liner, to make life simpler, was triple the thickness
9 that it actually was, so it could withstand all sorts
10 of pressures. So then it would come down to maybe
11 green, or maybe even, you know, what is it white?
12 Yellow. And yet, it's a universal agreement, there is
13 a universal agreement that the performance there was
14 atrocious, so risk cannot be a measure of performance.

15 MEMBER KRESS: That's what I said.

16 MEMBER APOSTOLAKIS: Risk cannot be, and
17 we're mixing them. Now you said earlier that the
18 sirens are important to the public, so we have to put
19 the appropriate colors, but then two minutes later you
20 said well, we have to live with those until we're able
21 to risk-inform them. Well, these are conflicting
22 objectives. Either you want to risk-inform them or
23 you don't. You say no, I will keep the white and
24 yellow thresholds because the public is there, and I
25 really care about them, worry about them, what they

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1 think. Or I will risk-inform it, and give it a
2 perspective of risk, so mixing the two makes some of
3 us uncomfortable, that risk is not something that
4 would tell you that performance is bad. I mean, it
5 will tell you that, but in some cases it will tell you
6 it's okay when you know it isn't.

7 MEMBER WALLIS: But you use your sense,
8 common sense. You're going to use risk information
9 and performance information in --

10 MEMBER APOSTOLAKIS: So let's take the
11 action matrix and put another into there, common
12 sense. I mean, as Churchill said, the problem with
13 common sense is that it is not common. And this
14 integrated decision making process is another way out,
15 in a different --

16 MEMBER WALLIS: You don't need a universal
17 yardstick.

18 MEMBER APOSTOLAKIS: But what's wrong with
19 doing it right? I don't understand that. What's
20 wrong with doing it right? Just because we've done
21 it.

22 MEMBER WALLIS: There's a right way to do
23 it?

24 MEMBER APOSTOLAKIS: Yes, performance.

25 MEMBER WALLIS: Well, it's all performance

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1 when it comes down to it. It's just that the
2 performance just has more risk impact, you're going to
3 weigh more heavily.

4 CHAIRMAN BONACA: The whole issue is that
5 -- here the whole issue of the regulation, as you
6 know, is to preserve the regulatory margin in the
7 deterministic system.

8 MR. SATORIUS: That's true.

9 CHAIRMAN BONACA: And now we're putting in
10 risk but, you know, you may have for degradation of a
11 barrier to the point where your regulatory margin
12 isn't affected at all. And that's why you get in that
13 kind of conflict, that you have risk increase really,
14 if you really quantify it to some degree, or maybe --
15 but you still have preserved the regulatory margin
16 that was really minimum requirement. And maybe that's
17 -- that's why I think it's hard to use risk.

18 MEMBER APOSTOLAKIS: But this is not the
19 objective of this process, is it?

20 CHAIRMAN BONACA: No. That's why I'm
21 saying that maybe that's one of the difficulty we
22 have, and I agree that performance would be the issue
23 really, and --

24 MEMBER WALLIS: I don't understand
25 George's problem. Then you're going to say that this

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1 risk has nothing to do with performance, and let's not
2 consider risk at all in all of these --

3 MEMBER APOSTOLAKIS: Risk is at a higher
4 level. According to what they are saying is that they
5 are dealing with noise. I mean, are you really
6 deviating from accepted industry performance or
7 practice, and then if you do, let's find out more
8 about it. We'll talk about it. You know, it's at the
9 low level, risk now is higher where serious things are
10 happening.

11 MEMBER WALLIS: Well, I think you would be
12 the advocate of using more risk information, rather
13 than --

14 MEMBER APOSTOLAKIS: I've been trying for
15 two years now to understand the objective of this.
16 I've given two or three explanations, one was maintain
17 the current level of risk. People didn't accept that.
18 Look at performance. Fine, then look at performance
19 only. And I'm giving you the example of Davis-Besse.
20 The risk level may be very low, and yet the
21 performance was terrible.

22 MEMBER WALLIS: The objective is neither
23 of those things. The objective is to decide what's an
24 appropriate response to a situation, and that
25 situation has different aspects to it, some of which

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1 involve risk, some of which do not.

2 MEMBER APOSTOLAKIS: But then you have to
3 understand, you know, what's going on there. You
4 can't justify everything by saying well, you know, I
5 really worry about this. I mean, some sort of
6 consistency has to prevail, some sort of technical --

7 CHAIRMAN BONACA: Well, I think the
8 process is risk-informed in the sense that, of course,
9 initiators have to do with risk, and so on and so
10 forth, so the elements -- that's the risk element of
11 that.

12 MEMBER SIEBER: Yeah, and that's only
13 three of seven cornerstones.

14 CHAIRMAN BONACA: Well, I understand that,
15 but the point is -- well, it cascades down, and now
16 they're doing a lot of work to see what else could be
17 included so far as indicators, so it is risk-informed
18 in that sense. The thresholds is the problem really
19 about --

20 MEMBER APOSTOLAKIS: Sure.

21 CHAIRMAN BONACA: That's the issue.

22 MEMBER APOSTOLAKIS: And, you know, we've
23 identified that fundamental flaw, as we called it,
24 that, you know, you are trying to change one thing to
25 see what leads to CDF, when you know that the agency

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1 will never let them go there, never let them go to 15
2 scrams a year. You guys will take action way before
3 that.

4 MR. SATORIUS: Well, absolutely, because
5 after they exceed three scrams, we do a 95001 and do
6 a follow-up inspection to understand it more
7 thoroughly.

8 MEMBER ROSEN: You're in the action matrix
9 already.

10 MR. SATORIUS: That's exactly right. And
11 after you exceed seven, we go out and do a 200 hour
12 inspection, a 95002 and understand further why it is
13 that they've had seven scrams in 7,000 critical hours.

14 MEMBER APOSTOLAKIS: In the discussion,
15 let's say your green to white now is three, I believe,
16 isn't it?

17 MR. SATORIUS: Yes. And once you have the
18 fourth, you're in white.

19 MEMBER APOSTOLAKIS: Yeah. So the matrix
20 could show only that, but in the background in the
21 text you could say now, just to give you an idea of
22 what three means, in order to see a significant change
23 in CDF you would have to go to 23, and leave it at
24 that. Don't put it in the matrix. That's a way out,
25 but it gives me a perspective of what three means.

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1 MR. SATORIUS: I would argue that it would
2 give you a better perspective of what three means, is
3 if you see the white/yellow threshold and the
4 yellow/red threshold, because then you see a
5 perspective -- because, first of all, the scram -- if
6 we're going to talk about that, the scram PI, both the
7 two higher thresholds, the yellow/red and the
8 white/yellow were based on risk studies, so those are
9 risk-informed. The green/white was more of -- we
10 looked at outliers. So I would argue that when you
11 balance all the stakeholders, and both our internal
12 stakeholders and external stakeholders, including the
13 public, it becomes a balancing as to is public
14 confidence probably going to carry that day here, and
15 the staff believes that public confidence carries the
16 day, because if you show, visibly show the yellow/red
17 threshold if it's at 25 scrams, then that is
18 indicative to somebody out in the public that the
19 plant that's two miles down the road is running two
20 scrams, or if it's running three and they know that
21 the NRC is initiating an inspection to review those,
22 that the staff is responding appropriately, there's a
23 lot of margin left as far as the risk-significance is
24 concerned, and I think we've done the right think.

25 MEMBER KRESS: Excuse me. I think there's

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1 a fallacy to that argument, and the fallacy has to do
2 with just what we're talking about. You're basing
3 your assessment of the performance of the plant, when
4 we get to that level, on the basis of it's change in
5 risk. And we're saying that's inappropriate, that
6 that plant that got to some level well before that,
7 has a degraded performance that should have raised a
8 flag long before you got there, and that you're
9 sending the wrong message when you include that in the
10 matrix.

11 MR. SATORIUS: Well, you know, the other
12 thing that we've realized as we've matured in the ROP
13 is that, first of all, we haven't seen plants with
14 over three or four scrams in 7,000 critical hours, but
15 when we see those, when we see them getting close, we
16 see other -- if you've got problems that cause that
17 many scrams, those are going to manifest themselves in
18 other problems, and in other cornerstones, such --

19 MEMBER KRESS: That's an assumption we've
20 never seen validated, but --

21 MEMBER APOSTOLAKIS: But it seems to me,
22 following on what Dr. Kress said, you are sending the
23 wrong signal to the public, because if they feel that
24 they are safe because the number of scrams is two,
25 versus the 25 it takes, you're sending the message

1 that what matters in the risk space is the number of
2 scrams, which is not true. It's not the number. You
3 could have one scram that really does you in, right?
4 Because it depends on a lot of what other things
5 happen. It's not the number. And if you look at any
6 PRA in the dominant contributors, I challenge you to
7 find me one that says that the number of scrams is a
8 dominant contributor. It always says losing electric
9 power, and then this, and then that, losing this, and
10 then this, and then that. It's the sequences, so
11 aren't you really sending the wrong message to the
12 public?

13 MR. SATORIUS: No, I don't think so
14 because the scrams you just described, George, the
15 loss of off-site power, the hard scrams, those are
16 going to events that we're going to follow-up from an
17 inspection perspective, and we're going to do an SDP
18 on those issues, and we're going to deal with those.

19 MEMBER APOSTOLAKIS: Why don't you say
20 that then? Why don't you say this is really what --

21 MR. SATORIUS: We do. WE do say that.

22 MEMBER APOSTOLAKIS: But you bring in the
23 issue of scrams, and then I really can't miss this
24 opportunity to address Dr. Wallis' concern. It seems
25 to me that he is a member who for the last four or

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1 five years has been raising the issue of the informed
2 technical groups as being stakeholders, so it seems to
3 me that the informed technical groups, for example,
4 the decision theories who looks at this, should be
5 able to say well, you know, it's not ideal, but at
6 least it's --

7 MEMBER WALLIS: No, I would say --

8 MEMBER APOSTOLAKIS: You find mistakes.

9 MEMBER WALLIS: No. I would say you risk-
10 inform as part of your information, but you know if a
11 plant has three scrams, it's going to be in the
12 newspaper each time there's a scram, and that's going
13 to cause a big sensation. That's important
14 information. You can't ignore that, retreat into risk
15 space and do nothing because it's not risk-
16 significant.

17 MEMBER APOSTOLAKIS: But that's not what
18 we're saying. We're saying make everything
19 performance-based. WE're not saying ignore --

20 MEMBER WALLIS: With all the information
21 you've got to make a sensible decision on what you
22 think --

23 MEMBER APOSTOLAKIS: You think in terms of
24 levels. They're dealing here with the mud down here.
25 You're deviating a little bit from good performance.

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1 Risk analysis will never really show you anything
2 there. Right?

3 MEMBER ROSEN: If I was --

4 MEMBER APOSTOLAKIS: It takes more serious
5 things --

6 MEMBER ROSEN: If I was an informed member
7 of the public who had the first 15 years of my career
8 post graduate career done PRA, and then became a water
9 color artist, and moved to one mile from a nuclear
10 plant, and paid no attention to Nucleonics Week or
11 anything like that, what the thing I would want to
12 know is how many complicated sequences the plant has
13 been in, not how many scrams, so this goes to the
14 issue of what is really significant to the informed
15 member of the public.

16 MEMBER SIEBER: It's the SDP that picks
17 that up.

18 MR. SATORIUS: I think that's what I was
19 trying to refer to a little earlier. For those
20 complicated scrams that involve mitigating systems
21 that are expected to start that don't start, or a loss
22 of off-site power, those are ones that we go out and
23 do an inspection on.

24 MEMBER ROSEN: But the thing in the ROP,
25 this hypothetical member of the public, all he did was

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1 once every month went into the website and checked the
2 ROP status, and it tells him how many scrams the plant
3 he's living next to had, if he knows nothing. But if
4 it told him instead how many times in the last three
5 years the plant had entered sequences of -- dominant
6 sequences and how far they had got down the road, then
7 he'd know something.

8 MR. SATORIUS: And I think the best way we
9 - - you know, we also gather information on scrams
10 with loss of normal heat normal, because those are
11 what we considered to be somewhat complicated scrams.
12 The other ones that we talked about, like the loss of
13 emergency diesel generators, or loss of mitigating
14 systems, we cover those under the inspection program,
15 so we make an effort to gather this information and
16 differentiate between what - my words - relatively
17 normal scrams, where equipment responds as expected, to
18 those that they do not, so that's an effort to
19 differentiate between the two.

20 We've had some challenges, quite frankly,
21 with the scrams of loss of normal heat removal, and
22 PIs, we have problems and challenges with all the PIs
23 that we aren't able to set up in a relatively simple
24 manner, such that they're easily counted.

25 MEMBER SHACK: You know, when we do the

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1 A-4 we sort of got away from looking at things one at
2 a time, that you realize that it's a complicated
3 system. You have to look at them all together. When
4 you do the Pis you're looking at one thing at a time,
5 and you're just driving that sucker all the way down
6 the road. And to me, that's a meaningful measure of
7 risk. When you say you're risk-informed, I'd say
8 that's mis- risk-informed.

9 CHAIRMAN BONACA: Well, I contend for the
10 thresholds of importance, which is like the one
11 between green and yellow, rather than yellow to red,
12 you're already performance-based, in my judgment,
13 because again the example I made before. If we had
14 set up the system 10 years ago, that number wouldn't
15 be one to three. It would be five to six, because it
16 would reflect what was acceptable at that time. And
17 still, you know, your PRS base, clearly you would
18 assume there isn't much of an increase in risk. And
19 I think for those thresholds that I'm talking about,
20 already we are there. You know, it's really when you
21 get down to the yellow/red and the number is 23 that
22 it becomes kind of peculiar.

23 MEMBER SIEBER: Well, for the average
24 person when you see the red threshold for scrams at
25 25, I think it's 25.

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1 MR. SATORIUS: It is.

2 MEMBER SIEBER: Then what that tells you
3 -- what it tells me is reactor scrams aren't very
4 risky, and that's because the plant is built to
5 shutdown that way.

6 MEMBER ROSEN: A scram is a safety action.

7 MEMBER SIEBER: But you measure something
8 because it does represent things to the public,
9 because they can see the cooling tower, if you have
10 one, and when it quits steaming, they know something
11 happened at the plant. On the other hand, if you
12 would take something like Davis-Besse, and you'd say
13 well, here's the risk status of that plant from three
14 cornerstones, the first three, you know, initiating
15 events, mitigating systems and barrier. On the other
16 hand, if none of their sirens work, what do you think
17 the newspaper would write about? Okay. So the
18 emergency plan, and the sirens and classification, and
19 effluents and how you treat your workers as far as
20 radiation dose are concerned, are relatively equal in
21 importance. Each of those cornerstones, and it was
22 the judgment of the regional administrators to say,
23 you know, if you create this risk situation in a plant
24 by equipment failures and so forth, that's worth this
25 much response to me. But if the governor is calling

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1 me saying these sirens don't work, that's a political
2 event for him, and that's worth that same response.
3 And that's how you end up mixing the apples and
4 oranges, and bananas and everything in the matrix.

5 MEMBER APOSTOLAKIS: But you can make
6 everything bananas by acknowledging that you are
7 dealing with --

8 (Several speaking at once.)

9 MEMBER WALLIS: I'm really puzzled what
10 this Committee is trying to achieve. I mean, the
11 Staff conclusions, I look at slide 7, is anything
12 going to change as a result of all this talk? What
13 are we trying to achieve? Does George want to remove
14 the word "risk-informed" entirely from this whole
15 process? What are we trying to achieve?

16 MEMBER APOSTOLAKIS: For three years now
17 I've been complaining that I don't understand the
18 objective of these classes. And I find it odd that
19 three years later, I still don't understand it.
20 Performance. I'm willing to accept that. Let's make
21 sure then the action matrix and everything we do deals
22 with performance. Risk, let's make sure it does. But
23 to start mixing the two and saying, you know, we're
24 going to show a yellow/red, or white - I'm confused
25 now - threshold that will give the public some idea

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1 about the level of risk, I think that's actually
2 misleading.

3 MEMBER SIEBER: But see, that's different
4 than what the Staff was told to do. There is an SMR
5 that's way back there that told them to develop a
6 revised Reactor Oversight Process.

7 MEMBER APOSTOLAKIS: And they did.

8 MEMBER SIEBER: And it should be risk-
9 informed. And you can't risk-inform things that don't
10 have risk associated with them.

11 MEMBER APOSTOLAKIS: The SDP, it seems to
12 me, is a good example of risk-informed approach,
13 because it deals with compound events as, you know, if
14 you're going to be in trouble, that's how you're going
15 to get into trouble. And they do a decent job
16 evaluating the risk.

17 MR. SATORIUS: But I want to make sure
18 that you understand that there are certain SDPs that
19 are not risk-informed.

20 MEMBER APOSTOLAKIS: Yes, we know.

21 MR. SATORIUS: Okay.

22 MEMBER APOSTOLAKIS: We know that, but
23 then that's a different issue. They try to
24 risk-inform them. I mean, that's a more technical
25 issue.

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1 MEMBER SIEBER: That's the same thing as
2 the performance indicators. Some of the performance
3 indicators have risk-information in them, and some do
4 not.

5 MEMBER APOSTOLAKIS: Was Davis-Besse green
6 before the incident?

7 MR. SATORIUS: Yes.

8 MEMBER SIEBER: It was green.

9 MEMBER APOSTOLAKIS: It was green, so it
10 seems to me in clear terms, that the ROP has failed.
11 That's the only test I know, real life.

12 MEMBER SIEBER: It's not a predictor.

13 MEMBER APOSTOLAKIS: Green, and you have
14 a major incident on your hands.

15 MEMBER SIEBER: It's not predictive,
16 though.

17 MEMBER APOSTOLAKIS: Well, I mean, do you
18 have any other measure of success?

19 MR. SATORIUS: Well, you're judging
20 success that the ROP in this specific instance was not
21 predictive.

22 MEMBER APOSTOLAKIS: Yeah. But if you
23 call it in this specific instance, you are really
24 downgrading it. I mean, that was a major instance.
25 And to have all green when something like that happens

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1 worries me, worries me a lot.

2 MR. SATORIUS: Well, I think it concerns
3 the Staff, as well. We --

4 MEMBER APOSTOLAKIS: It should.

5 MR. SATORIUS: A high group of folks that
6 went through the Lessons Learned. We have a task
7 force as a result of that. We are moving forward.

8 MEMBER APOSTOLAKIS: But the task force
9 though is looking at different things, looking at
10 corrosion issues, and looking at what happened, and so
11 on. This morning Mr. Gillespie told us that the
12 agency is going to have a White Paper on how to use
13 experience to change its processes. I mean, if there
14 is a prime example where we have to do that, it's this
15 one.

16 MEMBER POWERS: George, I hasten to remind
17 you of the saying among the legal brethren in this
18 world that tough cases can make for bad law. And I'm
19 wondering if you really wanted to use Davis-Besse as
20 the test for the ROP.

21 MEMBER APOSTOLAKIS: I'm having a big
22 problem, Dana. I have an Oversight Process that's
23 supposed to warn me about bad performance, and I have
24 this major event on my hands now, where my process was
25 telling me everything was very nice. I'm really

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1 disturbed by that. Whether I want to rewrite the law
2 to make sure, you know, that the Davis-Besse thing is
3 there, I don't know.

4 MEMBER POWERS: Well, I think I'd worry
5 more about it if Davis-Besse had involved something
6 that was anticipated, that was something that people
7 inspected for, that there had been past experiences
8 with. I'm much more concerned when I see the
9 Oversight Process not catching the fact that
10 preventive maintenance was not done correctly, or that
11 systems were not returned to the proper state after
12 tests had been done. Those things concern me much
13 more as a standard for comparing the ROP --

14 MEMBER ROSEN: What concerns me about
15 Davis- Besse is that the corrective action system,
16 which we rely on in so many ways, was not effective.

17 MEMBER APOSTOLAKIS: It was not effective.

18 MEMBER ROSEN: That is why I --

19 MEMBER POWERS: I agree with you. That's
20 the kind of point that I would go after, not the fact
21 that the incident actually occurred.

22 MEMBER SIEBER: Actually, when you look at
23 it --

24 MEMBER APOSTOLAKIS: They're related
25 though, aren't they?

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1 MEMBER SIEBER: Well, the ROP was never
2 intended to be composed of leading indicators. He's
3 really reporting on history and what the agency's
4 response to that history should be. And there is an
5 underlying presumption that if you have a lot of
6 issues in your plant, that it somehow is riskier than
7 if you don't have a lot of issues. And that's why you
8 look at initiating events, mitigating systems and so
9 forth, but it will not predict, the same way the PRA
10 did not predict Davis-Besse, because the phenomenon
11 wasn't long enough.

12 CHAIRMAN BONACA: Well, but I think Davis-
13 Besse, in the sense that here we have a case where
14 again those nozzles were never inspected, the two
15 nozzles up there. Okay? That, for example, would be
16 what would give a very poor mark to the plant, that
17 both the plant and the agency, and NRC were not
18 monitoring that issue, so there was -- that's what I
19 keep saying there's an oversight implied about the
20 whole context under which the CRDM cracking has been
21 tracked, so it's a difficult thing to do. I mean,
22 there were filters that were being clogged. I mean,
23 there are performance issues there that could have led
24 to a lot of --

25 MEMBER WALLIS: You can't argue against

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1 George on the basis of predictability. There were a
2 lot of things that went on for years which were
3 happening, which should have been detected. It's not
4 a question of would you predict what was going to
5 happen.

6 MEMBER APOSTOLAKIS: This process is not
7 predictive. Nobody is asking the --

8 MEMBER WALLIS: They should have caught
9 these things.

10 MEMBER APOSTOLAKIS: Exactly.

11 MEMBER WALLIS: Which performance
12 indicator failed to catch them, is the question, and
13 what can you do about it?

14 MR. SATORIUS: Well, it goes beyond
15 performance indicators alone. I think our view thus
16 far of what's happened at Davis-Besse has revealed
17 some inspection performance issues that we need to
18 address, and are addressing, so --

19 MEMBER ROSEN: But fundamentally, the
20 inspection agency is not primarily responsible. The
21 licensee is responsible. The fact that you didn't
22 catch them is a whole other story, but they should
23 have caught it themselves.

24 MR. SATORIUS: The fact that we may not
25 have caught them is something we're looking at, is

1 something on our plate.

2 MEMBER APOSTOLAKIS: It's easy to get lost
3 in the details and start arguing, you know, do you
4 need the yellow/red at 25 or whatever. The only way
5 that we have to know what's going on at the plants is
6 through the Oversight Process, is it not?

7 MR. SATORIUS: Yes.

8 MEMBER APOSTOLAKIS: Yes. Essentially
9 that's what it is.

10 MR. SATORIUS: The Oversight Process and
11 related, but yes, I would agree with you.

12 MEMBER APOSTOLAKIS: So it seems to me
13 that we have the bigger issue here, that we had such
14 a major incident, near major accident on our hands,
15 and our process did not identify the performance
16 issues, so why did that happen? Are we looking at the
17 wrong things? You know, maybe we are also busy now
18 trying to be green that we are missing the big
19 picture, and that's what bothers me.

20 MEMBER SHACK: I think, you know, the
21 lesson I get is that the ROP is still not doing a good
22 job of characterizing the corrective action program.

23 MEMBER APOSTOLAKIS: That's very true.

24 MEMBER SHACK: And that's what I'm
25 concerned about. You know, we're off basing -- you

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1 know, our effort seems to be on performance indicators
2 that have nothing to do with the Corrective Action
3 Program, and it would seem to me, you know, that after
4 -- you know, the biggest priority is the SDP, which
5 everybody seems to be working on, and I'm assuming
6 that's improving at a rapid rate, but I don't see any
7 concerted effort to, you know -- what are we going to
8 do, you know, how can we improve our oversight, or
9 monitoring, or indicator of the Corrective Action
10 Program, which would seem to me, you know, we all
11 agree that's an absolutely fundamental way to track
12 performance in the plant, and yet it's the one that
13 somehow --

14 MR. SATORIUS: Well, we agree with you
15 that it's an absolute necessity to track that, and
16 it's part of our baseline inspection.

17 MS. CARPENTER: Right. It is one of the
18 Action Plans.

19 MEMBER SHACK: And I understand that.
20 It's just that it seems to me it deserves even more
21 attention, you know, that somehow -- you know, that's
22 where we would have seen Davis-Besse, you know, that
23 somehow we didn't -- we weren't assessing the
24 effectiveness of the Correction Action Program,
25 whether it's through the inspection process, the

1 performance indicator. But I guess that's what, you
2 know, I would like to see in the ROP, if I had my
3 druthers as to what I see as the most important
4 development, is to go back and look at the Corrective
5 Action Program again, and some better way to track its
6 performance. That's, you know, a deficient
7 performance.

8 MR. FRAHM: That is exactly what the
9 fourth concern on this slide gets at. That's why we
10 put it on this slide. We agree that that's a big
11 concern, and we're looking at making changes across
12 that area.

13 MEMBER ROSEN: The issue being Corrective
14 Action System --

15 (Simultaneous speech.)

16 MEMBER ROSEN: Yes, those three things.
17 Think about Davis-Besse. Those three things is where
18 it was at.

19 MR. SATORIUS: It was a direct result of
20 that that we have taken these crosscutting issues and
21 folded them into our SDP Improvement Project Plan,
22 where we're going to look at additional activities
23 that we need to take into crosscutting areas. In
24 other words, inspection findings that crosscut
25 cornerstones, and we're considering whether we need to

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1 take additional actions for those licensees that have
2 identified crosscutting issues, and whether that
3 includes additional inspection, additional meetings,
4 or a response on the docket following the end-of-cycle
5 letter as to what their plan is to improve their
6 Corrective Action Programs, or human performance, or
7 safety conscious work environment.

8 MEMBER ROSEN: The unpleasant discussion,
9 the unpleasant thing about this discussion is that we
10 have spent 90 percent of our time talking about 10
11 percent of the issue, and 10 percent of our time
12 talking about 90 percent of the --

13 MEMBER WALLIS: Not just the issue, but
14 what's actually going to come out of this discussion?
15 I've learned now that you are doing something that's
16 substantial and meaningful on bullet four. I'm not
17 sure that anything substantial and meaningful has come
18 out of the discussion of the other bullets.

19 MR. SATORIUS: Not as yet. I will admit
20 we got somewhat sidetracked.

21 MEMBER WALLIS: So what other substantial
22 and meaningful things are likely to come out of this
23 discussion today?

24 MR. SATORIUS: Maybe we ought to just go
25 to the next slide, and talk about each of these four

1 bullets.

2 MEMBER SIEBER: But there is a fundamental
3 issue that we might as well note right now, is that
4 there are some among us that are concerned about the
5 conflict between risk information and performance
6 information.

7 MR. SATORIUS: We are clearly aware of
8 that. That might have been an understatement. We are
9 very clearly aware there are members of the Committee
10 that --

11 MEMBER SIEBER: Well, it's a hurdle we're
12 going to have to solve one way or another.

13 MR. SATORIUS: If I can just talk about
14 the first issue that we had on that bullet, which was
15 risk-informed and performance-based differences.
16 First of all, the Staff agrees with the Committee, and
17 the assertion that risk-informed PIs and SDP results
18 are not equitably qualifiable with performance-based
19 PIs and SDP results. We agree with you that it would
20 be a more intellectually legitimate if such methods
21 were able to be developed. Arguably, it would result
22 in a crisper approach to responding to plant issues if
23 the risk-informed findings were equitably qualifiable.
24 At least from an academic perspective, it would be
25 more scrutable, repeatable, and objective, and risk-

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1 informed. But in considering the Committee's position
2 and our discussions with the Subcommittee, and the
3 many stakeholders involved, as well as the basis for
4 why the ROP was developed in the manner that it was
5 developed, we consider our current approach to be
6 acceptable, but we recognize that it must continue to
7 make an evolutionary process.

8 CHAIRMAN BONACA: What does it mean, the
9 "evolutionary process"?

10 MR. SATORIUS: We need to continue to work
11 towards making our process more risk-informed, to the
12 extent that tools exist or can be developed to make it
13 more risk-informed. We believe it's more scrutable if
14 it's risk-informed.

15 CHAIRMAN BONACA: Okay. Because there is
16 a difference in our response, if you say we agree
17 that, you know, this connects here, and
18 inconsistencies, and we cannot do anything, but we'll
19 think about it, versus what I heard in the beginning,
20 that it takes time and we're striving for that, and we
21 will converge with you as time allows, and so on. I
22 mean, for a response, because in that case, I can
23 understand that maybe we can say time will bring us
24 together, but --

25 MR. SATORIUS: And I think it is the

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1 latter, because what we're trying to say is today
2 based on the tools we have available, we're unable to
3 move into this -- to a more risk-informed in some of
4 the cornerstones, but we have action plans underway
5 with coordination of the Office of Research, but today
6 we're not able to do more than what we have in place
7 today. And we want to quantify that by stating that
8 we believe that we're pretty close to the mark.

9 We believe that the plants that need
10 additional inspection because of performance problems
11 that relate back to either performance indicators or
12 inspection findings that are either performance-based
13 or risk-based, they're getting the more inspections,
14 and the ones that are performing better are getting
15 less inspections.

16 MEMBER WALLIS: I object to the use of the
17 word "academic" in a pejorative sense, but what you
18 imply is that academic means over-emphasizing some
19 theoretical aspect to the detriment of the decision
20 making process. And in engineering school, we teach
21 how to make sensible decisions based on all the
22 information we have, and based on the limits of that
23 information, the uncertainties and the public
24 response, and everything else, so I hope your final
25 decision is a very good academic one.

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1 CHAIRMAN BONACA: I still think there is
2 a divergence from what -- I think you heard from this
3 Committee that we believe that a solution of this
4 issue is to accept the fact that these are performance
5 indicators, of which the safety-related ones are risk-
6 informed, and that those attributes are risk-informed.
7 Okay. But the solution for us to go in a direction
8 where all these indicators are performance-based, not
9 performance. I mean, they are -- well, that they're
10 performance indicators. I'm sorry, they're not risk
11 - - and I hear you say that you're striving to make
12 all of them instead risk-informed.

13 MR. SATORIUS: I don't think I said that.

14 CHAIRMAN BONACA: Okay.

15 MR. SATORIUS: I think to the extent that
16 tools are available, that we can make our indicators
17 more risk-informed, we are working towards that goal.

18 MEMBER ROSEN: And in the cases where
19 they're not, it's perfectly acceptable, in my view, to
20 explain the reasons why you are not doing it. I think
21 the issue here is explanation and communication, more
22 than the need to drive the performance indicators, the
23 ones that are based on performance towards risk. It's
24 just a matter of you're dealing with apples and
25 oranges, and we all, both the regulator -- the

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1 regulated and the general public needs to understand
2 the difference on how they're being used. I think
3 risk communication, and overall communication would
4 help a lot.

5 MEMBER SIEBER: This gets to the issue of
6 transparency to some extent, and in your most recent
7 note to us, you indicated that you're trying to
8 achieve transparency through the basis document, which
9 I haven't seen yet.

10 MS. CARPENTER: We've issued that I think
11 several weeks ago, that was signed.

12 MEMBER SIEBER: Maybe we could get it.

13 MR. SATORIUS: I believe it was sent over
14 when we sent our memo in December. Is that right,
15 Ron?

16 MS. CARPENTER: Actually, it was before
17 that. The draft was sent to the members back in
18 November. But we have signed that out now.

19 MR. SATORIUS: It's been signed out within
20 the last week or so, so we can get an official copy to
21 you.

22 MR. FRAHM: I don't believe it changed
23 much from the draft though.

24 MR. SATORIUS: I'm just going to -- I
25 think you understand the direction that we're headed

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1 on that particular issue. Why don't you go to the
2 next slide, Ron, please.

3 MEMBER SIEBER: Well, I guess there's one
4 final question from the, again the academic
5 standpoint. We need to conclude whether it's correct
6 or incorrect to mix and match risk information and
7 performance information, because that's the crux of
8 the problem. And if we just now go out passed that,
9 I can't write my letter.

10 MR. SATORIUS: Well, we're not sure today
11 whether we can ever get to a fully - and I don't think
12 we'll ever get to a fully risk-informed process.

13 MEMBER SIEBER: Well, it would be
14 incorrect for you to say that you could, because in a
15 couple of the cornerstones it's impossible.

16 MEMBER APOSTOLAKIS: Well, actually I
17 think it shouldn't be risk-informed. It's
18 performance.

19 MEMBER SIEBER: I don't think -- well, you
20 would like everything performance-based, I presume.

21 MEMBER APOSTOLAKIS: Yeah.

22 MEMBER SHACK: It's a moot discussion.
23 Are we all happy with the green/white thresholds?

24 MEMBER APOSTOLAKIS: But these are
25 performance-based --

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1 MEMBER SHACK: Nobody is ever going to get
2 passed those.

3 MR. SATORIUS: WE realize that the ROP
4 isn't perfect, but we think that it's a process that
5 appears to be working. We have a confidence that it's
6 doing for us what we want it to do; and that is, to
7 give a cue as to what is the right level of NRC
8 response.

9 MEMBER APOSTOLAKIS: Did SALP look at the
10 Corrective Action Program?

11 MS. CARPENTER: Yes.

12 MR. SATORIUS: Yes, it was one of the
13 several functional areas.

14 MEMBER APOSTOLAKIS: So are we really
15 justified in saying this is an improvement over SALP?

16 MR. SATORIUS: The Staff certainly
17 believes it is.

18 MS. CARPENTER: And I think the industry
19 does also.

20 MEMBER ROSEN: I think it is definitely an
21 improvement, but we have this question about the ROP
22 failing to warn us about a significant event. And so
23 don't be too confident. It's okay, it's better, but
24 it failed to warn us about a significant --

25 MEMBER WALLIS: Can we put this risk-

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1 informed --

2 MEMBER APOSTOLAKIS: See, predictability
3 has -- the value of predictability has been
4 exaggerated, grossly exaggerated. I mean, the fact
5 that we have the columns and all, it allows everybody
6 to be green and everybody says well, this is great.

7 MEMBER WALLIS: Can we put this risk-
8 informed thing to bed? I mean, if we took the word
9 "risk-informed" away from this regulation, would it
10 suffer in any way? Would it improve in any way?

11 MEMBER APOSTOLAKIS: It's not just the
12 words.

13 MEMBER WALLIS: What's the problem?

14 MEMBER APOSTOLAKIS: You have to change
15 the action matrix.

16 MEMBER WALLIS: You receive information as
17 appropriate. What's the problem?

18 MEMBER APOSTOLAKIS: You have to change
19 the action matrix.

20 MEMBER SIEBER: Well, the SDP process --

21 MR. SATORIUS: The Commission has given
22 Staff Guidance to the extent that it can be made, and
23 then it's assumed that the guidance on risk-informing
24 the regulations in general.

25 MS. CARPENTER: You know, the agency's

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1 policy statement in 1995 says we should risk-inform to
2 the maximum extent possible, and that's what --

3 MEMBER KRESS: There are a lot of ways to
4 interpret that statement. And one way to interpret it
5 is, you chose areas to look at that are going to have
6 some impact on risk. That's all the risk-informing
7 you need to do with it.

8 MEMBER APOSTOLAKIS: And you have done it.

9 MEMBER KRESS: We've done it to the best
10 extent possible, and that's how we should have done
11 it.

12 MEMBER APOSTOLAKIS: You don't have to use
13 performance indicators.

14 MEMBER KRESS: That's right.

15 MEMBER WALLIS: So the mistake was to
16 start to try to use metrics like 10 to the minus 6, 10
17 to the minus 5, and like that.

18 MEMBER KRESS: That's what we're saying.
19 Yes.

20 MEMBER WALLIS: That's right. And I think
21 that has been downgraded though in importance. It's
22 not emphasized so much now, that there's a risk level
23 associated with these color changes?

24 MR. SATORIUS: For the risk-informed SDPs
25 and Pis there is a color change associated with

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1 changes in the core damage frequency.

2 MEMBER WALLIS: It's not an exact line.

3 MEMBER APOSTOLAKIS: Well, it's not a
4 bright line.

5 MR. SATORIUS: A lot depends on the
6 analysis, and the assumption, and the quality of PRAs
7 and the quality of our SPAR models.

8 MEMBER ROSEN: I am not going to sit here
9 and agree or let the record say that I agree to the
10 idea that risk-informing those indicators that could
11 be risk-informed was a mistake. I don't think it was.
12 I think it was the right thing to do, but trying
13 therefore to make everything else risk-informed is
14 probably pushing it too far.

15 MEMBER APOSTOLAKIS: Finally, this
16 Committee reached the point where it says there is a
17 limit as to how risk-informed something can be.

18 MEMBER ROSEN: You can't risk-inform
19 things that are not fundamentally risk-informable.

20 MR. FRAHM: And we agree too, and that's
21 really what this third bullet gets at, is that we have
22 the objectives of being as risk-informed as we can.
23 At the same time, we're trying to be predictable,
24 understandable, objective, and meet the four strategic
25 performance goals that everybody is aware of, so

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1 there's competing priorities and objectives.

2 MEMBER KRESS: There's still a fundamental
3 problem, and that is trying to say that there's a
4 correlation that we know between Delta risk and Delta
5 proponents. And that's where the mistake is, where we
6 differ.

7 MEMBER WALLIS: Has anyone said that's the
8 case?

9 MEMBER KRESS: Yeah. George and I have
10 been saying it.

11 MEMBER APOSTOLAKIS: The action matrix.

12 MEMBER WALLIS: Anyone said there is a
13 performance -- there is a correlation between the two?

14 MEMBER KRESS: Oh, I thought it was
15 implied in using risk to set the thresholds.

16 MEMBER APOSTOLAKIS: Yes.

17 MR. SATORIUS: I want to get to
18 crosscutting issues. Let's go to consistency and
19 transparency. Again, the Staff agrees with the
20 Committee's assertion that the PI an SDP thresholds
21 could be made more consistent and transparent. We've
22 done a number -- taken a number of steps to meet those
23 goals. Ron had mentioned we published a Basis
24 Document that clearly lays out where we started from,
25 and where we've gone to get where we are today, so

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1 that Staff and the public can understand the road that
2 we've traveled, and increase the transparency, how we
3 make decisions, and how we arrive at how the ROP
4 should be put together, and how it should be operated.

5 We're working hard to develop more risk-
6 informed performance indicators. And I mentioned
7 earlier about the mitigating systems performance
8 index. I don't think I need to go any further, other
9 than just to point out that it's not easy stuff.
10 We've run into a number of stumbling blocks that we
11 will have to deal with.

12 Thirdly, I had indicated also earlier that
13 we've established an SDP improvement plan that works
14 directly towards improving consistency and
15 transparency within the SDP process. Again, the
16 Staff, although we agree with the Committee's
17 position, we maintain that the base process works
18 sufficiently well to produce consistent and acceptable
19 results, and the results are, as I pointed out before,
20 the level of Staff involvement that they need to take
21 with a licensee as a result of their performance,
22 whether it's from a risk-informed performance
23 indicator, SDP, or performance-based performance
24 indicator or SDP.

25 MEMBER WALLIS: Well, you won't really

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1 know how well it's working until you get more data.
2 You haven't had enough events to tell.

3 MR. SATORIUS: Well, that's true. We
4 don't have as much run time. Usually you like to see
5 four years or more.

6 MEMBER WALLIS: If you had another Davis-
7 Besse which was traceable to you not having detected
8 things for five years, then that would really shock
9 you in your statement that this is working.

10 MR. SATORIUS: I agree with you, we
11 probably need some more run time.

12 MEMBER APOSTOLAKIS: So Davis-Besse itself
13 doesn't shock you?

14 MEMBER WALLIS: Yes, it does.

15 MEMBER ROSEN: I think you're right, it
16 does affect the statement. It's shocking, and if
17 there was another one, it would be shocking squared.

18 MEMBER APOSTOLAKIS: Then you would be
19 shock shocked.

20 MEMBER WALLIS: But whether it's risk-
21 informed or not wouldn't have saved you from Davis-
22 Besse.

23 MR. SATORIUS: Next slide please, Ron.
24 This is one that we know is still squarely in front of
25 the Committee's plate, and we have looked at it, as

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1 well. I think we all agree that ever reaching the
2 yellow/red threshold is highly unlikely. What is the
3 right number from a pure risk perspective? The right
4 number is what the number is, 25. And I think we've
5 discussed this sufficiently probably in this meeting,
6 and it's our position that we're going to leave the
7 yellow/red threshold in place for the reasons I think
8 we've described earlier. We are going to put it in
9 our queue for consideration at some point in time, but
10 it's down the line. We've got more important things
11 we think to deal with on the short term.

12 MEMBER ROSEN: You wouldn't be surprised
13 if the letter that we wrote on this might say
14 something about this.

15 MR. SATORIUS: Not at all.

16 MEMBER APOSTOLAKIS: It's not a matter of
17 only what the threshold is. The question is whether
18 you need the red at all. You don't have to worry
19 about the threshold. You might have a green/white.
20 It could be white and something else, and forget about
21 higher levels because you know you'll never get there.

22 MR. SATORIUS: But having the red there
23 does stay consistent to the way we've approached the
24 other Pis. To the extent that we have risk
25 information available, we will put all of the

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1 thresholds on there. The reason why you don't see
2 yellow information on some of the other Pis is that
3 they're performance- based. There's no risk
4 information to tie it to, so we just didn't feel we
5 had a justification for asking the expert panel to
6 come up with a threshold when they had really --

7 MEMBER APOSTOLAKIS: But I would -- I
8 don't think that the yellow/red threshold issue
9 applies only to scram indicators. It applies to all
10 safety performance.

11 MEMBER SHACK: I think it applies to
12 bullet two, that doing the thresholds the way you've
13 done one indicator at a time does not provide a gauge
14 of relative risk and demonstrate the --

15 MEMBER APOSTOLAKIS: But it's not only for
16 the scram.

17 MEMBER SHACK: It's not only for the
18 scram. It's the way the yellow/red threshold --

19 MEMBER APOSTOLAKIS: A very simple
20 solution.

21 MEMBER SHACK: And hence, they're working
22 on the MSGI.

23 MEMBER APOSTOLAKIS: An extremely simple
24 solution, just take it out. How long does that take?
25 No reds.

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1 MEMBER SHACK: They've heard the message.

2 MEMBER ROSEN: No. I think my point, I'd
3 like to make it again. I think you're working on the
4 MSPI, what's that called, Multi -- Mitigating System
5 Performance Indicators would go a long way to help in
6 this area.

7 MR. SATORIUS: We think it will too.
8 Although, realize that this is an initiating event.

9 MEMBER ROSEN: Yeah. It's only initiating
10 events. Well, again, see that's the problem.

11 MR. SATORIUS: Okay. And now to Mr.
12 Rosen's topic, crosscutting issues.

13 MEMBER ROSEN: Not my topic. It's the
14 issue about what we think the Davis-Besse -- where I
15 think the Davis-Besse thing was, why the ROP failed
16 us. Because the things about Davis-Besse were just
17 the ones we enumerated before, Corrective Action
18 Program, safety conscious work environment, and human
19 performance. And that if we had an ROP that was very
20 good in those areas, and had all kinds of page after
21 page of indicators on that, they'd have -- if the
22 inspections had been done right, we'd have had all
23 kinds of -- we've have green, orange, yellow across
24 the board. Maybe even red in some of those
25 indicators, and it wouldn't have been in March of

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1 2002. It would have been in 1999, perhaps, or 2000.
2 We'd have seen colors changing. That's what we need.
3 That's where we need to be.

4 MEMBER APOSTOLAKIS: But is it really the
5 Corrective Action Program only, when they see those
6 filters being replaced every other day, and they don't
7 ask why?

8 MEMBER ROSEN: No, that's the Corrective
9 Action Program. Somebody writes we're now replacing
10 them every other day when we used to replace them
11 every four months or every four years. What's going
12 on here? And that condition report goes right up to
13 management in a week, and there's a full stop, and
14 everybody figures out what -- all hands try to figure
15 out what's going on. That's a Corrective Action
16 System. It's got a low enough threshold to bring
17 events --

18 MEMBER APOSTOLAKIS: Would SALP have
19 caught that?

20 MEMBER ROSEN: SALP?

21 MEMBER APOSTOLAKIS: Yeah.

22 MEMBER ROSEN: I don't want to say
23 anything good about SALP.

24 MEMBER APOSTOLAKIS: I know you don't, but
25 would it?

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1 MEMBER ROSEN: No, I don't think it would.

2 MR. SATORIUS: The Staff does not think
3 that the old program would have.

4 MEMBER APOSTOLAKIS: Why not? You said
5 they had evaluated the Corrective Action Program.

6 MEMBER ROSEN: Yeah, but they do that
7 under both programs. But what's not visible -- and
8 there are lots of indicators that utilities use to --
9 that are brought to their management and their
10 off-site review boards to examine the health of their
11 Corrective Action System, dozens of them. The
12 question is what ones does the ROP want to use?

13 MEMBER SIEBER: The problem is that every
14 one of them differs from every other plant. They're
15 not consistent, and to try to get the industry to
16 abandon what they're doing and change to a industry --

17 MEMBER ROSEN: Don't try to solve a
18 problem here, Jack. It's way too big a problem to
19 solve, but I will say that they are all working on the
20 same thing. They have components and people who make
21 -- components that fail and people that make mistakes,
22 and programs that don't work. And they're supposed to
23 be writing those up in condition reports or failure
24 reports, and dealing with them, correcting them
25 promptly, and dealing with the generic issues raised

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1 by them, and precluding recurrence. That's what
2 they're all supposed to be doing. What they call
3 things and how they do it - sure, that's different -
4 but at the bottom level, they're all the same.
5 They're all trying to do the same thing from the same
6 sort of inputs. WE can have Corrective Action Program
7 indicators in ROP. We just haven't done it.

8 MEMBER APOSTOLAKIS: What?

9 MEMBER ROSEN: We can put Corrective
10 Action System Program indicators in the ROP.

11 MEMBER APOSTOLAKIS: Indicators.

12 MEMBER ROSEN: Indicators. It just hasn't
13 been done. I think it should be. I don't know how to
14 do it. I mean, sitting here it might take me a day or
15 two to figure it out.

16 MR. SATORIUS: I will have to -- this was
17 probably before my time within the branch, and I'm not
18 using that as an excuse, so I can't address your
19 question directly. I was wondering if maybe there was
20 a member of the Staff that is available that could
21 towards it. I know there has been some effort --

22 MEMBER APOSTOLAKIS: You're not asking for
23 answers now.

24 CHAIRMAN BONACA: They already told us
25 that they consider it --

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1 MEMBER APOSTOLAKIS: Yeah, this --

2 CHAIRMAN BONACA: The indicators are the
3 ones that are not really being used right now.

4 MEMBER APOSTOLAKIS: And in all fairness,
5 I mean there isn't really separate indicators that you
6 guys have been negligent to use. It's a tough
7 problem. It's a tough one. We're not asking you --
8 we've come close though to asking you to create life.

9 MR. SATORIUS: You're on the right track
10 there.

11 MEMBER ROSEN: That's about corrective
12 action. We should talk about human performance and
13 safety conscious work environment too. Those were the
14 other two.

15 MEMBER APOSTOLAKIS: Okay. Are we done?

16 MEMBER ROSEN: No. I'm asking them to
17 talk.

18 MEMBER APOSTOLAKIS: To talk about what?

19 MEMBER ROSEN: What they're doing on the
20 crosscutting issue.

21 MEMBER APOSTOLAKIS: No, he says they will
22 do it.

23 MR. SATORIUS: Well, what we're going
24 today on the crosscutting issues is, and maybe as a
25 way of a 30 second background. What we do today on

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1 the crosscutting issues is that at the end of every
2 ROP cycle each region analyzes all of their licensees,
3 and we have a series of meetings with senior staff and
4 the AARM, and before that in the end of cycle
5 meetings. But regions analyze all of their licensees
6 and come up with licensees that they determine to have
7 crosscutting issues in one of the three areas. These
8 are identified and we discuss them at high levels.
9 And then it's decided collegially amongst the Staff
10 that these specific issues do exist. They're
11 communicated with a licensee in a letter, the end of
12 cycle assessment letter. That right now is the extent
13 of what happens to them. They are -- let me finish,
14 if I could.

15 They are used as a cue for the baseline
16 inspection that looks at Corrective Action, the DINR
17 as areas that need to be looked at and dissected
18 during that inspection process.

19 MEMBER ROSEN: So there's this back room,
20 I will call it, evaluation going on that could lead to
21 further inspection of a Corrective Action System. But
22 I'm trying to -- what we're saying here, and we'll be
23 saying perhaps later in this meeting, that it ought to
24 be -- you ought to have indicators that are more
25 visible. As a result of this discussion that you

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1 obviously are making judgments, well what are they
2 based on? That ought to be in the ROP.

3 MR. SATORIUS: And that's a tough nut to
4 crack.

5 MEMBER ROSEN: Yes, I agree.

6 MR. SATORIUS: To move on as to what we've
7 taken from the Davis-Besse Lessons Learned Task Force,
8 is that we realize that we need to have a tool such
9 that a more active role in identifying and solving,
10 and pointing out to the licensees and then following
11 up needs to be available. And we've worked that into
12 the Task Action Plan such that we're looking at, and
13 I think I mentioned this earlier, looking at the
14 possibility of either having additional inspections
15 for those crosscutting issues, to look closer to give
16 us an opportunity to gather information on problems,
17 small problems before they become large problems. A
18 second option is to have a regulatory meeting with the
19 licensee so we can understand what they're doing, or
20 what they're not doing for these crosscutting issues.
21 And then the third option is to have the licensees
22 respond on the docket to the end of cycle summary
23 letter, to explain to us on the docket what they're
24 doing, and what they plan to do over the next several
25 months or years to correct these problems in the

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1 crosscutting areas.

2 Now you can use them singularly, or use
3 them jointly, and using them jointly can be quite
4 effective. You can have them respond on the docket,
5 and then perform an inspection to see if they're doing
6 what they say they're going to be doing. So those are
7 actions we've taken to try and beef up our oversight
8 of crosscutting areas.

9 MEMBER LEITCH: So then this oversight of
10 crosscutting areas then as I see it has many
11 attributes of the old SALP process, doesn't it? In
12 other words, what you're really doing is, it's an area
13 where there's a fair degree of subjectivity, and
14 you're looking at these three crosscutting areas, and
15 forming a subjective opinion, rather than performance
16 indicators or anything like that. You're trying to
17 subjectively assess the licensee's performance in
18 these crosscutting areas.

19 MR. SATORIUS: You're right. There are no
20 performance indicators in this area. We do give
21 fairly rigorous guidance within the assessment manual
22 chapter as to what issues would constitute a
23 crosscutting issue. And we have raised the bar to a
24 certain extent because frankly, we were mindful of
25 what has happened in the past, especially under the

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1 SALP and Senior Management Meeting process, and we --
2 and some of the criticisms from that period of time I
3 think were probably applicable, that there was
4 decisions made not in the public light. And to the
5 extent that we can, and the ROP has always been put
6 together to be as open to the public and scrutable as
7 possible, so we have public guidance out there in
8 Inspection Manual Chapter 0305 that gives a relatively
9 high bar. But on the other hand, we don't want to
10 make it such a high bar that we don't let the
11 precursors allow themselves to show so that we can act
12 on the precursors, because it's the precursors that
13 give you the insights that let you uncover and peel
14 that onion, and find the deep-seeded problems early.

15 MS. CARPENTER: And it's also more
16 transparent, because when these findings are entered
17 - - they're entered into the plant issues matrix, the
18 PIM. There is a block in there that they identify
19 that this was a crosscutting issue, so as you go
20 through that Plant Issues Matrix, you can see well,
21 they've identified this issue as having Corrective
22 Action or problem identification and resolution
23 issues. So what the 0305 Manual Chapter does, it
24 takes a look at all of those a little more
25 collectively at the mid-cycle and at the end of cycle

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1 meetings. And then it puts down the criteria of what
2 is that bar, and they can see what those issues are.

3 MEMBER APOSTOLAKIS: But I think something
4 that is perhaps unique to the crosscutting issues, is
5 that identifying a problem is not sufficient, because
6 people -- do people know what is a good Corrective
7 Action Program, or is it something that we declare it
8 when we see it?

9 MEMBER ROSEN: There is an INPO document
10 that is very specific about the principles of a
11 Corrective Action System.

12 MEMBER APOSTOLAKIS: I tell you what, I
13 will never accept that argument again. I've accepted
14 over the years, there is an INPO document. Did INPO
15 catch Davis-Besse? No. So the INPO documents don't
16 mean much for me any more.

17 MEMBER ROSEN: Well, that's because you
18 haven't read them. If you read this one --

19 MEMBER APOSTOLAKIS: No, I'm looking at
20 performance. I'm completely performance-based.

21 MEMBER ROSEN: You asked is there a
22 standard, and I say there is, and it's in an INPO
23 document that was developed by the utilities, of
24 course.

25 MEMBER APOSTOLAKIS: I have to see what --

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MEMBER ROSEN: I could bring you a copy of the document.

MEMBER APOSTOLAKIS: I mean, usually these documents are --

MEMBER ROSEN: George, you asked if there was a standard. I said yes, and I told you what it was.

MEMBER APOSTOLAKIS: No, it's not a standard. It's an INPO document.

MEMBER ROSEN: It's not a ANS standard.

MEMBER APOSTOLAKIS: It's an INPO document.

MEMBER ROSEN: It's not an American Nuclear Society document, but it was written by the people who run the Corrective Action Systems with a lot of outside influence, and I think it's excellent.

MEMBER APOSTOLAKIS: So if that had been implemented, Davis-Besse wouldn't --

MEMBER ROSEN: Right. If the Corrective Action System at Davis-Besse had met the requirements of that document, it would be different.

MEMBER APOSTOLAKIS: Well, INPO should be making their documents public.

MEMBER ROSEN: That document is a public

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1 document, INPO.

2 MR. SATORIUS: We have a biennial baseline
3 inspection in PINR that gives I consider very good
4 criteria on what areas to look at, what areas to
5 sample, and gives inspectors the guidance that we feel
6 is necessary for them to perform an inspection, to be
7 able to conclude that a Corrective Action is doing an
8 adequate job.

9 MEMBER APOSTOLAKIS: Anyway, I'll wait
10 until I see more specifics.

11 MS. CARPENTER: All right. So we
12 understand your concerns, but we do believe that the
13 ROP is working, and that it is working effectively.
14 And we believe when we look at the plants, that the
15 plants are receiving the appropriate level of
16 oversight. We also understand now that it is a work
17 in progress, and we need to continue to make
18 improvements. And we have identified improvements in
19 each of the four areas of the ROP, and we're working
20 on each one of those. And Davis-Besse Lessons
21 Learned, the SDP Task Group, the performance
22 indicators, we recognize that we need to continue to
23 make improvements to the ROP, and make it an even
24 better program.

25 We don't right now have any plans to

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1 revise what we call the fundamental basis of the ROP,
2 and that is that the elements are performance-based,
3 and to the maximum extent possible they're
4 risk-informed. But we also recognize that the ROP has
5 to remain transparent to all of our stakeholders, and
6 that we need to maintain consistency with what was the
7 fundamental principles of the ROP on which it was
8 built.

9 Now our Division Director would like to
10 make a few concluding remarks, if that's okay with
11 you. Bruce.

12 BRUCE: Cindi, you covered a lot of them,
13 but basically, you know, we've tried to represent that
14 we have had a mission underway to try and make our
15 assessment of licensees and our allocation of agency
16 resources transparent to everyone so that the agency
17 would respond to a given set of conditions in a
18 particular way. And that's what we think we've
19 achieved through the action matrix.

20 What Cindi has just said is that we have
21 to sift through this. There's a lot of activity still
22 ongoing. The Davis-Besse Lessons Learned Task Force
23 or the Davis-Besse event was a real eye-opener, and
24 there's a lot of things that we need to do. But
25 beyond that, we also have items that we're working on

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1 in the significance determination process, through
2 other interactions with stakeholders. There's a lot
3 of activities that we need to bring to finalization.
4 I don't think we'll ever get there, but we're going to
5 make changes. I'm sure that we're going to have the
6 opportunity to meet with you again so that we can
7 discuss those changes and, you know, we've tried to be
8 responsive to your interests. And that's about it.

9 MEMBER APOSTOLAKIS: So essentially then,
10 you are not going to do any of the stuff we raised in
11 that letter of 14 months ago.

12 MS. CARPENTER: Well, we are. When you
13 look at crosscutting issues, as Mark has already
14 stated, there are a number of things that we intend to
15 look at under the area of crosscutting issues. This
16 was the Davis-Besse issue, and the SDP Task Group
17 brought this issue up, and so we are going to take a
18 look at that area. We are going to -- right now we're
19 saying that we're going to maintain the yellow/red
20 threshold on initiating events, but this is some --
21 you have brought it to our attention. It is something
22 we're going to address with the industry, and it was,
23 in fact, on the agenda for the last meeting that was
24 cancelled due to the weather.

25 It is something we'll look at. We're also

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1 looking at improvements in the mitigating system --

2 MEMBER APOSTOLAKIS: But, Cindi, it has
3 been 14 months.

4 MS. CARPENTER: It has been 14 months, but
5 there are a lot of things that the Staff has been
6 working on. The SDP is a process that we're also
7 looking at, so we are making improvements in a lot of
8 the areas, and I think we have addressed a lot of the
9 areas. But as for the fundamental basis of whether we
10 should risk-inform, have risk-informed, that we should
11 maybe separate the risk-informed and the performance-
12 based, the Staff believes that the ROP is working, and
13 it's working pretty good. And we are going to
14 continue making improvements --

15 MEMBER APOSTOLAKIS: For the record, I
16 don't understand how you reach that conclusion. I
17 really don't.

18 BRUCE: It's based on a lot of input from
19 stakeholders.

20 MEMBER APOSTOLAKIS: And the stakeholders
21 are the industry.

22 BRUCE: No, sir.

23 MS. CARPENTER: The stakeholders are -- we
24 have private citizens, we have public interest groups.

25 MEMBER APOSTOLAKIS: Inspectors.

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1 MS. CARPENTER: Inspectors are a part of
2 the stakeholders, but so are some of the private
3 citizens groups. And we just conducted a survey,
4 we're in the process of evaluating that right now, so
5 we have a lot of stakeholders out there who have
6 looked at the ROP. They do believe it's a better
7 process than the old process, and we do believe that
8 it is working. We do believe when we look at where
9 the plants are falling in the action matrix, that the
10 plants are receiving appropriate regulatory attention.

11 MEMBER WALLIS: What are the measures of
12 success apart from the way people feel about the
13 program?

14 MS. CARPENTER: We have a number of
15 performance metrics. There are quite a few. We've
16 issued an Inspection Manual Chapter on that, and there
17 are about 30, 40 performance metrics, and we measure
18 ourselves against -- some of them come from internal,
19 some of them come from external, some of them very
20 objective performance indicators, and we measure the
21 ROP Program against those performance --

22 MEMBER WALLIS: And against objective
23 measures.

24 MS. CARPENTER: Yes. Some of them are,
25 yes. And some are subjective.

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1 MR. SATORIUS: Most are objective.

2 MEMBER WALLIS: Such as? What's the most
3 important objective measure?

4 MR. SATORIUS: I can give you just a list
5 of things that --

6 MEMBER WALLIS: What's the most -- one of
7 the most important? Just give me an example, an
8 objective measure that's important.

9 MR. SATORIUS: One of the objective
10 measures might be we look at performance indicators,
11 and see that how many performance indicators in the
12 course of the year jump two columns in the action
13 matrix. In other words, what -- because -- that's
14 indicative or it could be interpreted that it's
15 indicative of a plant --

16 MEMBER WALLIS: I'm looking for an
17 indicator which says this is really working to improve
18 safety.

19 MR. SATORIUS: I guess I'd almost have to
20 go to one of the agency's strategic goals then.

21 MEMBER WALLIS: I'm not sure you have any.
22 I'm not sure there is a measure of how well this is
23 achieving safety, except things like Davis-Besse.
24 What's the measure? Yo don't really have a good
25 measure yet.

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1 MS. CARPENTER: I think when you look at
2 the -- you look collectively at all the performance
3 metrics that we have, and all the different ways that
4 we've gained the input for those performance measures,
5 I think that's a way for us to say that we think the
6 program is working good, but we still do need to
7 improve.

8 MEMBER APOSTOLAKIS: We are raising issues
9 and objectives that are, in my view, peripheral. I
10 mean, the number one priority is to catch evolving
11 situations before they become serious accidents.
12 Transparency is of secondary importance, and yet we
13 are always saying transparent. Of course, the
14 industry is happy, but that's not the primary
15 objective here. The primary objective is to catch
16 Davis-Besse.

17 MS. CARPENTER: And we recognize that, and
18 we did a very, very hard self-assessment, and we
19 recognize that there were weaknesses in the inspection
20 program.

21 MEMBER ROSEN: But then you need to be a
22 little less self-congratulatory.

23 MEMBER APOSTOLAKIS: See, that's my
24 problem.

25 MEMBER ROSEN: Your first bullet says the

1 current ROP is working, that it's receiving an
2 appropriate level of --

3 MEMBER APOSTOLAKIS: That is --

4 MEMBER ROSEN: What it ought to say is we
5 think the current ROP is working better than the
6 previous program, SALP. And we think plants are
7 receiving appropriate levels of oversight, but we are
8 worried about the signal we get from Davis-Besse.

9 MEMBER APOSTOLAKIS: I do have belief that
10 I never saw any real argument. I know you guys -- why
11 is it better?

12 MS. CARPENTER: Because this --

13 MEMBER APOSTOLAKIS: It's transparent.

14 MS. CARPENTER: It's your objective. SALP
15 was their objective. This is much more -- if this --
16 if you cross this threshold, this is the action. It's
17 very defined. These are the actions that the Staff
18 intends to take. You can see by where you're at where
19 the agency and how the agency will respond.

20 MEMBER APOSTOLAKIS: But there is a lot to
21 be said about subjectivism too, and we have resorted
22 to subjectivism in 1174. We have integrated the
23 decision making process, because you can take into
24 account things that we don't know how to measure.
25 Right? Loss of defense-in-depth and so on, so we

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1 shouldn't really malign subjectivism that much. I
2 think maybe those guys when they were behind closed
3 doors at a Senior Management Meeting, and they were
4 making a decision, they were taking into account
5 things that are not in the process now.

6 MEMBER WALLIS: I don't malign it at all,
7 but I think we were entirely subjective. I'd be very
8 unhappy, and I --

9 MEMBER APOSTOLAKIS: I'm not saying we
10 should go back. I'm not saying we should go back,
11 Graham.

12 MEMBER WALLIS: That's subjective.

13 MEMBER APOSTOLAKIS: I'm just saying that
14 we are rushing into these conclusions. This is
15 better, and working, and all of that.

16 MEMBER WALLIS: Well, I'm saying there
17 isn't really much evidence for this conclusion, so
18 don't be too self-congratulatory.

19 MS. CARPENTER: We understand, but --

20 MEMBER POWERS: Can I just ask a question
21 related to something you said, you said you've been
22 working on the significance termination process. Can
23 you tell me where we stand on the fire SDP?

24 MS. CARPENTER: I don't know. They are
25 working on it, that I know, last time I heard. Yeah,

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1 come to think of it, Russ Gibbs can answer that
2 question. Peter can answer that. Okay. They are --
3 I think they're on track to have it issued later on
4 this year, but Peter knows exactly what the status is.

5 MR. KOLTAY: Peter Koltay. What I would
6 like to suggest actually is in sometime early summer
7 or late spring they should have a meeting addressing
8 just fire protection. The complexity of that SDP I
9 guess has surpassed all the other processes that we
10 have, and right now I think together with the industry
11 and other stakeholders, we're going down a path where
12 we actually have seven subcommittees in each of the
13 important fire protection areas, and they're working
14 on -- working driving towards that new formula that's
15 going to give us a better --

16 MEMBER POWERS: At the conclusion of this
17 process, will I know where the parameters come from,
18 and the inputs that go into the calculation?

19 MR. KOLTAY: And each of the seven
20 subcommittees are each on those parameters.

21 MEMBER POWERS: And the Fire Protection
22 Subcommittee will take this up with you.

23 MR. KOLTAY: Absolutely. That's what I'm
24 recommending. It's a complex issue.

25 MS. CARPENTER: But there are a number of

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1 improvements we're making in the SDP area.

2 MEMBER POWERS: Yeah. I mean, it was just
3 one that I never knew how to use, because I couldn't
4 figure out what inputs to put into it, and I don't
5 know where the coefficients came from. And so, I had
6 no clue how to -- I couldn't get an answer.

7 MR. KOLTAY: We have periodic public
8 meetings, I think every couple of months, and I'm not
9 sure if you've attended some of them. The last one
10 was at the Ramada up in Rockville, and perhaps it
11 would be good if you attended the next one.

12 MS. CARPENTER: So I think what we're
13 saying is based upon the things that we've learned,
14 all four areas of the ROP, we have a number of
15 initiatives ongoing to continue to improve the
16 program. And we're going to continue to work those
17 initiatives, and to make the program even better.

18 MEMBER SIEBER: Any comments or questions
19 from any of the members at this point? If not, I'd
20 like to --

21 MEMBER WALLIS: We are writing a letter on
22 this?

23 MEMBER SIEBER: Yeah, we are. WE're going
24 to have to decide what that letter is going to say.
25 We have two different viewpoints, so somebody gets to

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1 write the letter, somebody gets to write added
2 comments. In any event, I'd like to thank our
3 speakers for your well-prepared discussion. Mr.
4 Chairman, thank you.

5 MS. CARPENTER: Thank you.

6 CHAIRMAN BONACA: If there are no other
7 questions or issues by the members --

8 MEMBER POWERS: Maybe you should remind
9 the speakers of Commissioner Dykus' comment about 500,
10 all the abuse that's occurred in the 500 meetings, who
11 should be honored for that, not the ACRS, but the
12 Staff.

13 MS. CARPENTER: We are. Thank you.

14 CHAIRMAN BONACA: No. We were trying not
15 to abuse them too much today.

16 MEMBER ROSEN: The Staff thinks we had
17 1,000 meetings.

18 CHAIRMAN BONACA: With that, we'll take a
19 recess for lunch.

20 MS. CARPENTER: Thank you.

21 (Off the record from 12:32 p.m. until 1:32
22 p.m.)

23 CHAIRMAN BONACA: Okay. We are back in
24 session. We are going to review now Vessel Head
25 Penetration Cracking and Vessel Head Degradation. And

1 Dr. Ford will guide us through this presentation.

2 MEMBER FORD: Thank you, Dr. Bonaca. The
3 topic matter for today's meeting was to be based on
4 information that was to have been given at a 1-1/2
5 days subcommittee meeting earlier two weeks ago, which
6 was canceled.

7 And during that meeting there were to be
8 extensive discussions of various VH degradation issues
9 from both the staff and from MRP, and they had a list
10 of questions that we had sent them prior to that so
11 that it would be a very productive meeting.

12 As you know, the meeting was canceled, and
13 it will be rescheduled for the 22nd and 23rd of April.
14 As a consequence, today the only presentation that
15 will be given will be by the MRP, who will give an
16 overview of what was to have been given two weeks ago,
17 and which will be given in April in detail.

18 There will be no presentation from the
19 staff, but they will be present to ask questions if
20 appropriate. This is for information only, and it has
21 not been approved currently by the staff. Larry.

22 MEMBER POWERS: You indicated that it is
23 for information only. What are we collecting
24 information in anticipation of?

25 MEMBER FORD: Of the meeting -- what will

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1 they be collecting information of, or --

2 MEMBER POWERS: No, I mean, is there some
3 grand strategy here that we are working for, or is
4 this just for idle curiosity?

5 MEMBER FORD: It is not for idle
6 curiosity. I think what Larry would appreciate is any
7 input that we may have that might make the
8 subcommittee meeting in April more productive, and it
9 is my hope that in May that we will have this topic
10 covered by the ACRS, and potentially maybe a letter.

11 MEMBER WALLIS: You offer no explanation
12 for why the staff was ready to speak to us two weeks
13 ago and is not ready to speak to us today.

14 MEMBER FORD: I will ask the staff if they
15 are present to make any comments.

16 MS. WESTON: One of the reasons that they
17 are speaking to us today is that as you will recall
18 the subcommittee meeting was a day-and-a-half, and we
19 only have two hours here, and it was not possible to
20 have all of them cover the material that they were
21 supposed to cover in two hours, as opposed to a day-
22 and-a-half.

23 MEMBER FORD: The topic matter that is to
24 be covered at the subcommittee meeting, Dana, goes to
25 Davis-Besse, lessons learned, task force, the --

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1 MEMBER POWERS: Yes, I am still struggling
2 with -- well, you said we are going to write a letter
3 on what, that we don't like VHP cracking?

4 MEMBER FORD: No, we are not writing a
5 letter today.

6 MEMBER POWERS: No, but you said
7 eventually.

8 MEMBER FORD: Well, eventually. Once we
9 have the information that merits any comments, but we
10 will not receive that information today.

11 MEMBER POWERS: How better is it to say
12 that we do or don't like cracking?

13 MEMBER FORD: I doubt that we will say
14 that we like it. Larry.

15 MEMBER POWERS: I am still trying to find
16 out what we are going to do today.

17 MEMBER FORD: We are not writing a letter
18 today and that is the main point. We will as
19 appropriate at some future date write a letter.

20 MEMBER WALLIS: Are we going to hear any
21 -- are we going to have any data or results presented
22 today, or is this just going to be --

23 MEMBER FORD: Maybe, Larry, you could
24 answer that.

25 MR. MATTHEWS: It is pretty much an

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1 overview of a summary of statistics and stuff like
2 that on inspections and all, but it is all we could do
3 in a couple of hours.

4 MEMBER WALLIS: But you remember some data
5 which you could perhaps tell us about if we asked
6 questions?

7 MR. MATTHEWS: Maybe.

8 CHAIRMAN BONACA: Well, going back to the
9 question of Dana's, my understanding as that if we had
10 come to the meeting a week-and-a-half ago that we
11 would have also had insights in the changing
12 expectations of the staff regarding inspections?

13 MEMBER FORD: That's right.

14 CHAIRMAN BONACA: And we would come to
15 some kind of recommendation at some point in the near
16 future, and with respect to the time that when we will
17 provide comments?

18 MEMBER FORD: Yes. We will not receive
19 enough information today to write anything, even if it
20 is --

21 CHAIRMAN BONACA: If it had supported this
22 today, it would have been on the Federal Register in
23 part, and so really today is more for informational
24 purposes?

25 MEMBER POWERS: The staff is going to come

1 out with something that says that we don't like
2 cracks, and when you find them, do something about
3 them? And we will say that sounds good to us.

4 CHAIRMAN BONACA: Well, hopefully it will
5 be more than that.

6 MEMBER POWERS: Oh, okay.

7 MR. MATTHEWS: I am Larry Matthews, and
8 some of you know me. I am the Chairman of the MRP
9 Alloy 600 Issues and Task Group, and I work for the
10 Southern Nuclear Operating Company. I am the manager
11 of the inspecting and service -- I'm sorry, we changed
12 it.

13 I am the manager of the Material
14 Inspection Services Group at Southern Nuclear. I have
15 got a couple of three things that I want to try and
16 cover today, and like you said, it is all pretty much
17 at a high level.

18 This is the first part of the topic, and
19 it is based on kind of an overview of the inspections
20 that have taken place, and then what we know of the
21 plans for the spring outages. This is --

22 MEMBER FORD: I'm sorry, but you will not
23 be talking at all about the MRP research plan, or an
24 overview of the MRP research plan which you talked
25 about in June of last year?

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1 MR. MATTHEWS: I don't have much in here
2 on that. I can talk about some of the things that we
3 are doing and I will talk about some of those.

4 MEMBER FORD: But that would have been
5 covered two weeks ago, and it will be covered in April
6 at the subcommittee meeting?

7 MR. MATTHEWS: Yes. If you can read this,
8 this is a neat chart.

9 MEMBER WALLIS: Do we get a prize for
10 reading it?

11 MR. MATTHEWS: Yes.

12 MEMBER WALLIS: I can read that the red is
13 a leaking nozzle.

14 MR. MATTHEWS: Right.

15 MEMBER POWERS: I have read enough to see
16 that there is an entry error on at least one of the
17 columns.

18 MR. MATTHEWS: Which one? Show me and I
19 will see I can fix it. We sorted all the -- this has
20 all 69 plants, CWRs in the U.S., sorted by their
21 effective degradation years at the time way back in
22 February of '01.

23 MEMBER WALLIS: And the lowest EDYs at the
24 top?

25 MR. MATTHEWS: No, the highest is at the

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1 top.

2 MEMBER WALLIS: The highest EDYs?

3 MR. MATTHEWS: Right.

4 MEMBER WALLIS: At the top?

5 MR. MATTHEWS: Right. Now, some of these
6 plants, they have accumulated EDYs at slightly
7 different rates since then.

8 MEMBER KRESS: The --

9 MR. MATTHEWS: Right. At 600 degrees with
10 a --

11 MEMBER POWERS: Because it is high at the
12 top, and then you keep coming down, and then all of a
13 sudden it jumps up and there is 10.7 in the middle of
14 the thing. I mean, it is a non-continuous function
15 there.

16 MEMBER WALLIS: Where is the 10.7, Dana?

17 MR. MATTHEWS: That is the number that was
18 reported for South Texas, and South Texas did --

19 MEMBER POWERS: You know Texans can't tell
20 time.

21 MR. MATTHEWS: They went back and
22 reevaluated their head temperature, and when they did,
23 they had 10.7 that was in our table in February of
24 '01, but when they reevaluated it, it dropped way down
25 because their head was running considerably cooler

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1 than they had initially reported.

2 MEMBER POWERS: No kidding. They must
3 have the plant turned off.

4 MR. MATTHEWS: Well, it is not that bad,
5 but it certainly slowed down the accumulation of EDY.
6 And there is a lot of other information on this, and
7 which I agree that you may need a magnification glass
8 to read it.

9 I intended to bring a gigantic folder or
10 I mean poster, and it is neatly folded up and in a
11 folder laying on a table in Denver because I forgot it
12 there.

13 MEMBER WALLIS: Well, could you tell us
14 what we ought to notice that is important?

15 MR. MATTHEWS: Okay. What you ought to
16 notice is all of these different types of inspections.
17 The yellow inspections are some form of volumetric
18 inspection, across the colored blocks, which represent
19 individual nozzles on each plant.

20 So every nozzle on every plant is
21 represented on this chart, and this is based on their
22 latest inspection results. The red represent, I
23 believe, the leakers, and there is not enough light up
24 here to -- well, that is the leaking nozzles, and it
25 is based on their visual inspections.

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1 And the real thing that we are trying to
2 show with this chart, and we intend to keep it updated
3 as further inspections go, is that all of the leaking
4 nozzles and the circumferential cracks, which are the
5 black squares, and then any wastage that has -- if any
6 significant wastage has occurred, almost all of that
7 has taken place in the very high EDY plants.

8 And so although everybody recognizes that
9 time and temperature correlation was a very simplified
10 approach, at least based on the inspection results
11 today, it seems to be bearing out in general
12 something, where the susceptibility of the plants are.

13 MEMBER FORD: Larry, the wastage is -- the
14 cracking is a precursor to the wastage?

15 MR. MATTHEWS: Right.

16 MEMBER FORD: You said incidents, plural,
17 of wastage. I can't read this. Is there more
18 instances of wastage than just Davis-Besse?

19 MR. MATTHEWS: There were two nozzles that
20 had the wastage.

21 MEMBER WALLIS: It was only Davis-Besse,
22 I guess.

23 MEMBER FORD: Only Davis-Besse?

24 MR. MATTHEWS: Yes.

25 MEMBER FORD: Okay. I am jumping the gun

1 here, but that is good news. But the bad news is that
2 we don't know from the physics of the relationship as
3 to why Davis-Besse underwent wastage once it had
4 cracked.

5 Will you come to that later on as to how
6 we can predict the cracking at a specific plant?

7 MR. MATTHEWS: Predict cracking?

8 MEMBER FORD: I'm sorry, wastage.

9 MR. MATTHEWS: Wastage? We are working on
10 a model, and we had kind of a phenomeological
11 qualitative model that was part of the basis for our
12 initial MRP 75 inspection plan, and we got comments
13 from the NRC on areas that needed to be beefed up.

14 And we also had that reviewed by an expert
15 panel of people, and they came back with further
16 comments on areas that we needed to perform work. And
17 quite a bit of work is planned in our research plan in
18 the area of boric acid wastage, and we are working on
19 putting together plans for how we will do that lab
20 test and bench test.

21 And then ultimately if it is justified,
22 then full-scale mockups.

23 MEMBER FORD: It has been a year since
24 Davis-Besse, and that work has not started yet?

25 MR. MATTHEWS: The detailed corrosion

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1 testing hasn't, no. It should start fairly soon. I
2 think we have RFPs in on some of that work.

3 MEMBER FORD: Well, there is one out
4 already from EPRE for boric acid corrosion studies.

5 MR. MATTHEWS: Yes.

6 MEMBER FORD: What is the essence of that
7 RFP? Will you be coming to that later on?

8 MR. MATTHEWS: I am not sure if that is in
9 here, that level of detail.

10 MEMBER FORD: Okay. Will it be covered in
11 the subcommittee meeting?

12 MR. MATTHEWS: Yes, and just kind of off
13 the top, we were doing lab tests to look at the
14 various pieces of the model. Our model showed a
15 progression from an initial crack, all the way through
16 to a cavity formation, and we will be doing tests to
17 quantify the rates, et cetera, at the various phases
18 of that progression.

19 MEMBER KRESS: Who is developing that
20 model, EPRE?

21 MR. MATTHEWS: Yes. It was EPRE.
22 Dominion Engineering put the phenomenological part
23 together, and then we are going in and we are going to
24 be doing tests of the various phases.

25 And one of the things that we got comments

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1 on was that we needed to consider flow assisted
2 corrosion and impingement more than apparently the
3 initial model.

4 MEMBER FORD: And what is the intended
5 outcome from this, specifically from an engineering
6 point of view?

7 MR. MATTHEWS: The intended output is to
8 try and quantify how fast some safety significant
9 wastage could develop were a crack to go through a
10 wall.

11 MEMBER FORD: As a function of?

12 MR. MATTHEWS: Of time.

13 MEMBER FORD: And presumably geometry of
14 the --

15 MR. MATTHEWS: Yes, the geometry and the
16 interference fits, and the various parameters that are
17 part of the model.

18 MEMBER FORD: And so from that you will
19 have some relationship which will show why Davis-Besse
20 is the only to have shown one inch per year wastage,
21 compared with all the other ones that have cracked; is
22 that right?

23 MR. MATTHEWS: Well, what we are going to
24 try to do is try and quantify the wastage rates that
25 can occur, and in these situations with cracks through

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1 the nozzles and through the welds.

2 MEMBER KRESS: Will we get a chance to see
3 these models sometimes? I am quite interested in the
4 details of that.

5 MR. MATTHEWS: Well, yeah, I think so. I
6 mean, it was part of -- the phenomenological part was
7 presented to the ACRS, I believe, in --

8 MEMBER FORD: Yes, in June.

9 MR. MATTHEWS: And when we had it
10 reviewed, basically the panel pointed out where we
11 needed the data to back it up, and so we are going to
12 try and gather that data.

13 MEMBER POWERS: When I compare what I
14 think is your chart here to -- and a much more simpler
15 and much more legible chart that the staff has, they
16 look like they rate high, or you rate high.

17 Is there any significant disagreement
18 between you and the staff on what the vulnerable
19 plants are, or the susceptible plants are?

20 MR. MATTHEWS: I don't think there is on
21 the --

22 MS. WESTON: Let me --

23 MR. MATTHEWS: Go ahead.

24 MS. WESTON: Let me explain what he is
25 talking about. On page 24 in your book under Tab 4,

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1 there is a susceptibility list that was included with
2 the order, and it is the susceptibility list from the
3 staff as of February 12th, 2003, and that is what he
4 is talking about.

5 You don't have it, Larry, and I will give
6 you my copy for you to see.

7 MEMBER FORD: Page what?

8 MS. WESTON: Page 24.

9 MR. MATTHEWS: I don't think in general
10 that there is a disagreement as to how we should --
11 basically, the NRC has said that recognizing that it
12 is not perfect, the time and temperature is what we
13 have got right now, and they are using our --

14 MEMBER KRESS: Well, aren't they both
15 based on the same equation?

16 MR. MATTHEWS: Yes, they are both based on
17 the same type of equation. In fact, it is the same
18 equation I believe.

19 MEMBER POWERS: Somebody might have drawn
20 the threshold that took place.

21 MR. MATTHEWS: Yes, we initially drew the
22 threshold for high susceptibility up around 18 EDY,
23 and the NRC has pushed it down to 12 based on some
24 inspection results from -- I guess at Millstone and
25 back-calculating from Davis-Besse and that sort of

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1 thing.

2 But if you will notice, most of the flaws
3 that we see are in the higher end. There has been a
4 couple of cracks down on the lower EDY. But most of
5 the flaws have been at the higher end of the EDY
6 range.

7 MEMBER FORD: Larry, could you put it down
8 then as -- and both Tom and I especially, and I am
9 sure someone else, would like to know more of the
10 details and what you are going to do scientifically in
11 this boric acid mechanism, because it is crucial that
12 we understand some of the predictive way as to why one
13 nozzle will crack, and waste from the other one will
14 crack, and not waste?

15 MR. MATTHEWS: I understand, and we would
16 like to understand that, too, and in better detail
17 than we do today, and that is the point in the boric
18 acid corrosion research program. We are launching a
19 fairly large program and we respect the head wastage
20 or the corrosion from the head to the nozzle, and we
21 will be prepared to present those kinds of details.

22 MEMBER FORD: I can't read on this, but
23 does grade mean inspected and no cracks seen?

24 MEMBER KRESS: It means no nozzle
25 inspected. A crack and no nozzle.

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