

**NUCLEAR REGULATORY COMMISSION**

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499th Meeting

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

499<sup>th</sup> MEETING, DAY 2

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THURSDAY, FEBRUARY 6, 2003

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ROCKVILLE, MARYLAND

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The Committee met at the NRC, Two White Flint  
North, Room T2B3, 11545 Rockville Pike, at 8:30  
a.m., Dr. Mario V. Bonaca, Chairman, presiding.

COMMITTEE MEMBERS PRESENT:

- MARIO V. BONACA Chairman
- GEORGE E. 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
- WILLIAM J. SHACK Member
- JOHN D. SIEBER Member
- GRAHAM B. WALLIS Member

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1     ACRS STAFF PRESENT:

2     JOHN T. LARKINS                     Director  
3     SHER BAHADUR                     Associate Director  
4     SAM DURAISWAMY                    Technical Assistant  
5     HOWARD J. LARSON                 Special Assistant  
6     TIMOTHY KOBETZ

7

8     ALSO PRESENT:

9     CHRISTINA E. ANTONESCU  
10    RALPH E. ARCHITZEL  
11    MARK CUNNNINGHAM  
12    RANI FRANOVICH  
13    ROBERT L. GILL, JR.  
14    ED HACKETT  
15    GARY M. HOLAHAN  
16    BP JAIN  
17    ALAN KOLACZKOWSKI  
18    KOFI KORSAH  
19    PT KUO  
20    JOHN LEHNING  
21    GREGORY D. ROBISON  
22    NATHAN SIU  
23    SUNIL WEERAKKODY  
24    RICHARD T. WOOD

25

C-O-N-T-E-N-T-S

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(8:32 a.m.)

CHAIRMAN BONACA: The meeting will come to order.

This is the first day of the 499th meeting of the Advisory Committee on Reactor Safeguards.

During today's meeting, the committee will consider the following: Catawba-McGuire license renewal application; draft regulatory guide DG-1107; water sources for long-term recirculation cooling following a loss of coolant accident; and draft generic letter 2003-XX, related to the resolution of GSI-191; assessment of debris accumulation on PWR sump performance.

Three, PTS reevaluation project; technical basis for potential revision to PTS screening criterion; draft final version of regulatory guide DG-1077, guidelines for environmental qualification of microprocessor based equipment important to safety in nuclear power plants.

And finally, proposed ACRS reports.

This meeting is being conducted in accordance with the provisions of the Federal

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1 Advisory Committee Act. Dr. Larkins is the  
2 designated federal official for the initial portion  
3 of the meeting.

4 We have received written comments from  
5 Mr. William Horin of Winston & Strawn, counsel to  
6 Nuclear Utility Group on equipment qualification  
7 regarding draft regulatory guide DG-1077.

8 We have received no requests for time to  
9 make oral statements from members of the public  
10 regarding today's sessions.

11 A transcript of portions of the meeting  
12 is being kept, and it is requested that the speakers  
13 use one of the microphones, identify themselves, and  
14 speak with sufficient clarity and volume so that  
15 they can be readily heard.

16 We do not have in front of us any item  
17 of interest yet. So I'll announce that when we get  
18 that.

19 With that, we will start with the first  
20 presentations on our agenda. That's the Catawba and  
21 McGuire license renewal application.

22 We met as a subcommittee for this  
23 license renewal application on October 8, 2002. At  
24 that time the SER came to us with the 41 open items,  
25 and by the time we got into the meeting, I believe

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1 the open items were reduced to only 11.

2 Since that time, those open items have  
3 been resolved. The final SER with all closed items  
4 came to us on January 6th, 2003, and I believe we  
5 are ready to hear from the staff and the applicant.

6 And so I will turn to Dr. PT Kuo for the  
7 presentation.

8 I would like to just be aware of the  
9 time restrictions. We have many items on our  
10 agendas. You have time scheduled until 10:15 a.m.,  
11 and I believe the applicant is pretty anxious to go  
12 to the presentation and beat the snow storm.

13 (Laughter.)

14 CHAIRMAN BONACA: So that would be an  
15 incentive for us to stay on schedule.

16 MEMBER POWERS: So we can really ask a  
17 lot of questions here and stretch this one out a  
18 little bit for these guys.

19 CHAIRMAN BONACA: All right, okay.

20 MEMBER SIEBER: Mr. Chairman, I'd like  
21 to point out that I must recuse myself due to  
22 conflict of interest from the Duke Energy situation.

23 PARTICIPANT: Thank you.

24 CHAIRMAN BONACA: So noted.

25 With that, Dr. Kuo.

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1 DR. KUO: Thank you.

2 Good morning. We will try to keep the  
3 schedule as much as we can.

4 CHAIRMAN BONACA: Yes, sure.

5 DR. KUO: The presentation will be  
6 pretty brief.

7 My name is PT Kuo, the Program Director  
8 for the License Renewal and Environmental Impacts  
9 Program. With me on my right is Rani Franovich.  
10 She is the Safety Project Manager for the review of  
11 the McGuire-Catawba license renewal application.  
12 She will be leading the staff presentation today,  
13 with the support from the technical reviewers.

14 In addition to those who will be sitting  
15 in from at the table with her, we will also have the  
16 key tech. reviewers sitting in the audience and  
17 ready to answer any questions you may have.

18 As, Dr. Bonaca, you pointed out, at the  
19 last subcommittee meeting we had about 11 open  
20 items, and since we have resolved all the open  
21 items, and Ms. Franovich will be briefing the  
22 committee on most of these open items.

23 I would also want to point out that in  
24 response to your comment in previous meetings on the  
25 commitment list, Duke has submitted a commitment

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1 list to the staff for review. The staff has since  
2 reviewed, verified, and included the list in the  
3 SER.

4 In the previous meetings I have also  
5 informed the committee that the staff was in the  
6 process of finalizing inspection procedure post  
7 renewal inspection procedure. That is IPE 71003.

8 We have since finalized the issue, dated  
9 December 9th, 2002. I believe you all have a copy  
10 in front of you.

11 With that, if you don't have any  
12 questions, I will turn the briefing over to Duke  
13 followed by the staff presentation.

14 CHAIRMAN BONACA: One thing I would like  
15 to just note, that in fact the commitment list  
16 attached to the SER, it's the first time we've seen  
17 that. That's extremely useful.

18 DR. KUO: Great.

19 CHAIRMAN BONACA: And I think it would  
20 be desirable to see that in every SER to follow.

21 DR. KUO: Thank you.

22 CHAIRMAN BONACA: Thank you.

23 MR. ROBISON: Good morning. Thank you,  
24 first, for the opportunity to come and speak this  
25 morning.

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1 My name is Greg Robison. I'm the  
2 Project Manager for License Renewal at Duke Energy.  
3 With me today is Bob Gill, our licensing lead for  
4 license renewal. Bob and I have been doing this a  
5 long time, and we're very glad to get to this day  
6 and glad to be back with you again.

7 Later this morning, as Rani presents  
8 detailed technical information about several of the  
9 open items, we'll have a chance to dialogue on those  
10 items. What we thought we would do for the Duke  
11 presentation is do a small bit of background and  
12 then tell you where we're going in the future and  
13 give you a little bit of a feel for how we plan to  
14 manage the commitments you just spoke of into the  
15 future and how we're preparing for those things  
16 today so that we'll be ready for them tomorrow.

17 I begin with my typical pictures of our  
18 power plants. It's always good for visual folks to  
19 realize these are on beautiful lakes there in the  
20 Carolinas. On the left side is McGuire. It's north  
21 of Charlotte, North Carolina, on Lake Norman. Lake  
22 Catawba is on the right, and it's on Lake Wylie  
23 south Charlotte.

24 The next page for those who like details  
25 is a little bit of the stats of the plant. They are

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1 four sister units, four Westinghouse plants,  
2 construction finished in the '80s, employ about  
3 2,200 people combined between the two sites. So  
4 we're real pleased with the plants. They're running  
5 very well, and I'm glad we can take them through  
6 license renewal.

7 Go on to five.

8 All right. I guess the first thing to  
9 point out on the application background, and Dr.  
10 Powers and I were talking about this just a moment  
11 ago, is we took the same team that we used out of  
12 Oconee and we continued them on into McGuire-  
13 Catawba. So we had a good, solid core of experience  
14 as we began the McGuire and Catawba license renewal  
15 process.

16 We did ask for and receive approval of  
17 an exemption request for the 20 year requirements  
18 because Catawba -- McGuire Unit 2 and Catawba 1 and  
19 2 were younger than 20 years, and collectively,  
20 again, the four sister units, we felt like we had a  
21 good operating experience and could proceed with  
22 renewal.

23 We submitted the application June of  
24 2001. The site supplemental environmental impact  
25 statements were issued December of 2002. SER, as

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1 was mentioned, was issued in January of 2003, and  
2 the safety and environmental reviews, the details of  
3 them in themselves covered a review period of 60  
4 years.

5           Going forward, we had planned to go  
6 ahead and implement the UFSAR supplement at the next  
7 UFSAR update, go ahead and incorporate it. It is  
8 Chapter 18 of our UFSAR. We've trained the site,  
9 both sites completely on this. They're aware that  
10 it's there. They're aware of their  
11 responsibilities.

12           We wanted to make it as normal a part of  
13 the UFSAR, nothing extraordinary, nothing that would  
14 be out of the norm. So it's right there in the book  
15 or right there in the electronic file with the other  
16 parts of the UFSAR.

17           Currently we have completed our  
18 training. We're going through the process of  
19 marking up procedures and implementing things in the  
20 plant. We'll take a good portion of the remainder  
21 of this year post approval to complete those  
22 procedure updates, and then we will be up and  
23 running and be able to manage the commitments from  
24 there.

25           We have put in place plans to evaluate

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1 plant changes as time goes on, and Bob is going to  
2 present the details of some of that.

3 And then as to the future, we'll  
4 maintain the records to support future assessments  
5 by our in-house team and also any further NRC  
6 inspections that may come along in order to validate  
7 the commitments that are being managed or the one-  
8 times that are being taken care of as we move into  
9 the renewal period.

10 So that's a little bit of background on  
11 where we are, how we got to today, and Bob is going  
12 to give you the next level of detail from here.

13 MEMBER LEITCH: Greg, you mentioned  
14 training. Could you say just a word about the scope  
15 of the training necessitated by this license renewal  
16 effort?

17 MR. ROBISON: Well, there are really two  
18 levels for the training. The first was to create an  
19 awareness that this new commitment set was there.  
20 We've spent about ten years at Duke creating an  
21 awareness that aging management is important. It's  
22 not just creating a program that a bunch of  
23 specialists run, but creating an understanding by  
24 the whole work force that as the plant ages we're  
25 all responsible for managing aging.

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1 Well, the license renewal led to a set  
2 of specific commitments. So the training was to  
3 help them understand now we've gone publicly and  
4 committed to certain activities and details of those  
5 activities, and we wanted to train them on that.

6 In addition, we wanted to train them on  
7 the process that we had put in place or were putting  
8 in place to maintain those commitments.

9 So we packaged all of that in a -- how  
10 long was the training program, Bob?

11 MR. GILL: Several months last summer.

12 MR. ROBISON: Hours?

13 MR. GILL: A couple hours.

14 MR. ROBISON: And we took all of the key  
15 staff at both of the sites and our general office  
16 through this training.

17 MEMBER LEITCH: Okay. Thank you.

18 MR. GILL: Okay. I'm going to go into a  
19 little bit more detail on what Greg has mentioned.

20 Early this last month I, in fact, sent  
21 the FSAR supplements to each site so that we'd start  
22 getting in the process to make an amendment or an  
23 update to the FSAR. Each FSAR is updated  
24 periodically six months after the Unit 2 outage, not  
25 to exceed two years.

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1           So within the next couple of years we'll  
2 have updates with Chapter 18 already in the SAR.

3           So the plants are going through their  
4 formal review process to assure that all of the  
5 owners of those sections are aware what the  
6 commitments are and start taking ownership of the  
7 programs we have.

8           We've created several documents, and I'm  
9 going to go through these to help implement the  
10 commitments in the plant. The first one is this  
11 plant specific turnover specification, or Spec 16,  
12 and that specifically identifies the detailed  
13 changes to each and every procedure that is needed  
14 to implement the commitments. These could be plant  
15 procedures, inspection modules, surveillance  
16 procedures, that type of things, maintenance work  
17 orders, work orders where a craftsperson would go  
18 down and perhaps look at a strainer or the inside of  
19 a pump or something along those lines.

20           Certain hardware, aging management  
21 programs, such as the flow accelerated corrosion  
22 program or the fluid leak management. Each one is  
23 going to be annotated to indicate that it is now a  
24 license renewal commitment to do that.

25           There's also other documents we had

1 called engineering support programs which will also  
2 indicate that this is a license renewal related  
3 item.

4 The Spec 16 also includes something that  
5 we call inspection monitoring plans for future  
6 inspection activities, and if you'll turn in your  
7 handouts, you'll see a copy of the page. I don't  
8 have it as an overhead, but this is a copy of the  
9 page that we have for the pressurizer spray head  
10 examination.

11 This is right out of Spec 16. This is  
12 the typical format for each and every one of the  
13 programs that we've credited, and it has a title.  
14 It lists all of the references that we have for it,  
15 including the FSAR section where it is further  
16 described in detail, and in this case it's 18.2.20.  
17 It refers to the SER section. It will refer to  
18 where it came from in the application, and in this  
19 case it was really a response to a request for  
20 additional information from the staff.

21 There's also a Spec 05 which has even  
22 more detail in programs and inspection activities.  
23 So we have a reference there, and then any other  
24 piece of correspondence that we might have. In this  
25 case it was response to a particular open item.

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1 This is something that the plant --

2 CHAIRMAN BONACA: I thought you had that  
3 changed for VT-1 inspections.

4 MR. GILL: Yes, this was the one to go  
5 from VT-3 to VT-1. So that was an open item we had.  
6 So you're exactly right, Dr. Bonaca.

7 CHAIRMAN BONACA: Okay.

8 MR. GILL: So there's a brief  
9 description of what the program is, the activity,  
10 and then you see we have internal milestones.

11 Dr. Kress?

12 MEMBER KRESS: I didn't want to dwell on  
13 the details of this, but I was just reading it, and  
14 if you go in with a visual inspection, how do you  
15 find thermal embrittlement?

16 MR. GILL: You find the results of that  
17 which could be cracking, and that's why --

18 MEMBER KRESS: You're looking for  
19 cracks?

20 MR. GILL: You're looking for cracks  
21 really.

22 MEMBER SHACK: Well, why does it say  
23 initially VT-3 and then you do a VT-1?

24 MR. GILL: Well, a VT-3 is just a little  
25 further away. It should be a VT-1. I think if you

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1 go down further we've got a VT-1.

2 MEMBER SHACK: That's what caught my  
3 eye.

4 MR. GILL: Yeah. We'll fix that in the  
5 next revision.

6 CHAIRMAN BONACA: Originally it was VT-  
7 3.

8 MR. GILL: It was VT-3.

9 CHAIRMAN BONACA: -- to a VT-1 because  
10 of the --

11 MR. GILL: And this may be -- one of the  
12 reasons that is uncontrolled is it's still in  
13 review, and we'll make sure that change gets in  
14 before the next revision comes out.

15 The main point here is you see the  
16 milestones in the future, and we've incorporated the  
17 fact that we've committed to look at Unit 1  
18 specifically, and then if necessary look at Unit 2,  
19 and then from there possibly Catawba, and Catawba  
20 would have a similar chart on that.

21 So there is a synergy between the two  
22 Westinghouse plants.

23 I also want to point out we've already  
24 committed to look at the Oconee pressurizer spray  
25 heads, which will occur much earlier than this, and

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1 so there may be some lessons learned as we have  
2 there. It's the same type of material, but it's a  
3 different design.

4 So we're not quite sure what we're going  
5 to find when we go in there, but I had --

6 CHAIRMAN BONACA: At Ocone you're  
7 looking only at Ocone 1 or all repressurized? I  
8 can't remember.

9 MR. GILL: I think it's just Ocone 1,  
10 and then from there we decide.

11 CHAIRMAN BONACA: Ocone 1, okay.

12 MR. GILL: It's a spray head design, and  
13 so it's got fine holes. It's spherical shape. I  
14 asked the question at McGuire when I was doing some  
15 management training, information exchange, and  
16 nobody at the site today has ever seen what the  
17 pressurizer spray head looks like. They've never  
18 looked into it.

19 MR. ROBISON: We actually talked to the  
20 manufacturer in the process of digging out this  
21 information. It's got an interesting design to it  
22 that's different than the Ocone design, and of  
23 course, this brings up a good point about the one  
24 time inspections.

25 They were never geared to go find aging

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1 that we thought was occurring.

2 CHAIRMAN BONACA: Right.

3 MR. ROBISON: They were geared to deal  
4 with those doubts when we did not really feel like  
5 we had an aging problem. We just absolutely  
6 couldn't be sure. So we wanted to go look again.  
7 We want to be conservative as we look to run the  
8 units many more years.

9 So this was another one of those  
10 opportunities to take a look.

11 MR. GILL: But it is cast all in  
12 stainless steel and certainly thermal embrittlement  
13 with the temperatures and cycles and all of that.

14 So anyway, that's typically what a Spec  
15 16 program description would be. They are signed  
16 off by all of the program owners and who created it.  
17 So there is some ownership that would occur there,  
18 and this is what we have in the interim used to get  
19 all of our plants' procedures going.

20 This one has no current plant  
21 procedures, but I'll get into what we do for  
22 preparing for long-term inspections in the next set  
23 of overheads.

24 Anymore questions on this phase?

25 CHAIRMAN BONACA: And the last

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1 commitment --

2 MR. GILL: This is more sort term.

3 CHAIRMAN BONACA: The last commitment  
4 you have is develop dramatic oversight. So prior to  
5 entering the renewal period --

6 MR. GILL: That's correct.

7 CHAIRMAN BONACA: -- you will have it.

8 MR. GILL: If there's a need for  
9 periodic inspections --

10 CHAIRMAN BONACA: Exactly.

11 MR. GILL: -- or whatever, we would have  
12 that in place prior to entering the period of  
13 extended operation.

14 CHAIRMAN BONACA: Okay. Good.

15 MR. GILL: That's correct.

16 We feel that commitments made for  
17 license renewal must be maintained obviously,  
18 particularly pursuant to 5437(b), and that changes  
19 to the FSAR commitments are going to be made by the  
20 existing 5059 program.

21 The concern is how do you make sure that  
22 happens in the future when you have new people  
23 perhaps 15 or 20 years from now trying to manage  
24 these commitments that one has.

25 What we're created are we did a lot of

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1 brainstorming over the past couple of years of how  
2 can you actually change the plant and perhaps impact  
3 a commitment you've made for license renewal, and  
4 through a lot of iterative processes we came down to  
5 you can physically modify the plant to add or delete  
6 something that might change the commitment. You can  
7 make operational changes to the plant that may  
8 change ambient conditions that are worked there. It  
9 may change a flow path, a few open valves that were  
10 isolated for some reason.

11 In fact, we had that at Oconee where  
12 some heat exchangers were valved in when we had them  
13 valved out when we did the initial review.

14 You can also have current licensing  
15 bases changed by bulletins, generic letters,  
16 regulations. Perhaps some more will come out on the  
17 control rod drive mechanisms that will supersede  
18 what we've already committed to.

19 So there are numerous ways you have to  
20 do that. So you have to look at your existing  
21 internal processes to see how best that can be  
22 accomplished and how do you make sure that if  
23 something does change you don't undo a commitment  
24 that we've already made for license renewal.

25 Site engineering is the key in these

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1 areas, and they were heavily involved in the  
2 training that we did last summer at all three  
3 stations in this area, and what we've come up with  
4 is an engineering oversight document that's  
5 corporately owned, and it's a common process for all  
6 three sites.

7 I think Greg briefly alluded to this at  
8 our last meeting we had in October, and it's the  
9 process for maintaining the license renewal scope,  
10 an aging management of components within the license  
11 renewal scope. It's an overall. It's a very high  
12 level process document that actually has a flow  
13 chart in it, and I have copies of it.

14 I don't have an overhead I can show  
15 you, but it basically takes those three sources of  
16 changes that you could have, plant modifications,  
17 operational changes or CLB changes and works them  
18 through a process of will it do this, can it do  
19 this, do you have to make a change, are you within  
20 the bounds of what you've already analyzed.

21 If you're replacing a carbon steel  
22 component with another carbon steel component,  
23 perhaps there's no change at all. You know, these  
24 are one out of 1,000 items that get changed and they  
25 cause a change to the commitments one has made.

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1           If you change your reactor vessel head,  
2 do you need to change now your CRDM nozzle  
3 inspection program? That would have to be looked at  
4 to see what would the appropriate change be. That  
5 would manifest itself in perhaps a change to the  
6 FSAR supplement.

7           It certainly defines the specific  
8 responsibilities in establishing the aging  
9 management SPOC. I think at the last meeting  
10 someone called it "Dr. SPOC."

11           Well, those are all three established  
12 now, one at each site. They're in training. They,  
13 in fact, meet periodically. There is a corporate  
14 sponsor that helps facilitate the communications  
15 amongst the three sites. They share lessons learned  
16 as they start doing some of these reviews, and it  
17 provides the method to make sure that we do the  
18 reviews when we need to have the reviews done and  
19 that we make the right decisions on what additional  
20 programs might be needed or changes to existing  
21 programs or whatever.

22           MEMBER KRESS: Is SPOC an acronym for  
23 something?

24           MR. GILL: Single point of contact.

25           MEMBER KRESS: Single?

1 MR. GILL: Site point of contact, and  
2 that person has been introduced to the site  
3 personnel at McGuire. She has a sponsor in the  
4 engineering area, and the engineering manager is a  
5 middle manager, and that person talks to everybody  
6 else.

7 So there's a lot of communication and  
8 dialogue to make sure that they know who the person  
9 is. There's a lot of responsibility on the front  
10 line. Modification engineers who are making plant  
11 mods to make decisions and only if they need to do  
12 they go to the SPOC.

13 Hopefully, there will be a self-  
14 sufficient, and when you go through a mod checklist  
15 to see what documents you need to change, you've  
16 answered the question of am I changing something  
17 with EQ, am I changing something with fire  
18 protection, am I making a new safety related system  
19 adding a new piece of paper or whatever.

20 That's covered in the mod process, and  
21 only if you really get something different like  
22 titanium versus stainless steel would you go to the  
23 SPOC to see what to do.

24 MEMBER KRESS: If I could have seen the  
25 slide, I would have known it was an acronym, but --

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1 MR. GILL: We try to do that, Dr. Kress.

2 MEMBER KRESS: Yeah.

3 MR. GILL: Spell it out the first time.

4 MEMBER KRESS: What does that third  
5 bullet mean, specially the "should they be required"  
6 part?

7 MR. GILL: If you put in a new material  
8 and --

9 MEMBER KRESS: Oh, if you do something  
10 on this page that could impact your commitments?

11 MR. GILL: Yeah. Say you put Alloy 690  
12 in instead of Alloy 600.

13 MEMBER KRESS: Yeah.

14 MR. GILL: Perhaps you'd have to do a  
15 new review for that because you hadn't completed it  
16 or titanium or some other material that may not have  
17 been used in that system before. You would do a  
18 review to make sure.

19 MR. ROBISON: We were concerned that we  
20 had the expertise, of course, to do the aging  
21 management reviews for renewal, but we needed to  
22 leave that process somewhere so that --

23 MEMBER KRESS: You need to pass it on as  
24 corporate memory.

25 MR. ROBISON: Right.

1 MR. GILL: That's right.

2 MR. ROBISON: And so what we've done is  
3 created this 229 document that sort of embodies all  
4 of that, gotten a number of people to own it,  
5 plugged it back into the site. So hopefully there  
6 will be enough people around as time moves on.  
7 There will be a general awareness of how to do this  
8 and at least know where the resources are should  
9 they want to do a new material selection and go  
10 through this review process.

11 MEMBER KRESS: About to have a loss of  
12 power accident.

13 MR. GILL: Active/passive component  
14 here.

15 CHAIRMAN BONACA: I hesitate to ask.

16 MEMBER POWERS: Where's the back-up  
17 generator?

18 MEMBER KRESS: Do you have a diesel for  
19 that?

20 MEMBER POWERS: Let me ask you this  
21 question. Who does the SPOC report to?

22 MR. ROBISON: The SPOC reports to the  
23 civil mechanical manager inside of the engineering  
24 department at each of the three sites.

25 MEMBER POWERS: Is that too far down the

1 line of management to be effective?

2 MR. ROBISON: I don't know.

3 MEMBER POWERS: I mean, how do you look  
4 at that?

5 MR. ROBISON: The civil mechanical  
6 managers supervise the majority of the program  
7 office.

8 MEMBER POWERS: I know they do, but the  
9 question is SPOC is in the business of making work  
10 for people. Most people kind of resent that.

11 MR. ROBISON: You're right. I haven't  
12 really given that a lot of thought.

13 MEMBER POWERS: I want to give some  
14 thought to it because both for optics and for the  
15 ability to impose new requirements on people that  
16 they're not going to like.

17 MR. ROBISON: It's a good suggestion.  
18 Thank you.

19 MR. GILL: A good point.

20 Anymore questions on the previous slide?  
21 We're up to Slide 11 now.

22 EDM 229 defines the aging management of  
23 SPOC duties. It's the site technical point of  
24 contact for this program. Again, there's one at  
25 each site plus a corporate sponsor. So they share

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1 the lessons learned amongst all three sites and are  
2 not on an island by themselves.

3 They can provide any guidance for the  
4 aging management reviews that are done by other  
5 engineers. They also are independent checkers of  
6 the Chapter 18 program changes that may occur so  
7 that again we don't undo something.

8 And I expect Greg and I will be in a  
9 role of consulting over the next year or two as  
10 people try to make even more changes that they want  
11 to now that they're finally reading the document in  
12 detail, and we've already had some of that.

13 MEMBER POWERS: Screech.

14 MR. GILL: Screech. We're committed to  
15 do what?

16 (Laughter.)

17 DR. LEITCH: Is operating experience at  
18 other plants fed into the SPOC somehow or how does  
19 that information get in?

20 MR. GILL: That would be under the CLB  
21 type changes that might occur, any operating  
22 experience that might occur that rises to the level  
23 of a notice or some other generic communication  
24 coming down.

25 MR. ROBISON: It really feeds in at two

1 places. It feeds into the program owners who are  
2 there and as part of their program keep up with  
3 industry operating experience, and it feeds to the  
4 SPOC, and that's where that sort of independent  
5 review role comes in for them.

6 At least that was what we envisioned.  
7 This has obviously not been up and running that  
8 long, but that would be our thought. It would  
9 create several people who would be interested in a  
10 topic and a good dialogue to start at their own  
11 site.

12 MR. GILL: Particularly the control rod  
13 drive, the head issue. Certainly the program owner  
14 of that is well versed in what's going on with the  
15 other units in the country, their inspection results  
16 and all of that, and that's the program owner.  
17 That's why on those program summaries we had them  
18 sign to make sure they knew what the commitments  
19 were, and they would maintain ownership as long as  
20 they had that position and for the duration.

21 An additional tool we have is the  
22 license renewal handbook, and this is Spec 017.  
23 This was developed as an aid to the aging management  
24 SPOCs in evaluating the impact of plant changes on  
25 license renewal programs and scope. It contains a

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1 lot of information, license renewal scope  
2 definitions, smart charts, the implementation plans  
3 we noted earlier.

4 In some cases it has drawings to help  
5 clarify when something is in scope, and it will be a  
6 living document to be updated as changes that might  
7 occur in the future.

8 The next slide in your handout, the next  
9 overhead page in your handout is a copy of the smart  
10 chart from Spec 17. This is McGuire, and this is  
11 the auxiliary feedwater system. And what we have  
12 done is collapsed all of the aging management  
13 reviews that we did for this system down onto one  
14 page. So instead of having multiple pages of tables  
15 like we had in the application, in fact, we have  
16 more information here because the mechanisms are  
17 listed.

18 But you can see for the aux. feedwater  
19 system -- and this is it for the aux. feedwater  
20 system, just this one page. You can have carbon  
21 steel and stainless steel. The external  
22 environments would be reactor building and sheltered  
23 and then treated water is the internal environment.

24 And then you see the programs that we  
25 actually credited for that, what the type of aging

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1 effects were, what the aging mechanisms were, and  
2 then a summary listing of the component types that  
3 are included in that part of the system and what the  
4 functions are.

5 So this allows engineers in the future  
6 to help decide if I'm making a plant change to the  
7 aux. feedwater system and I'm using carbon steel or  
8 stainless steel, I can see that all of these reviews  
9 have already been done, and I know that I don't have  
10 to go in and change any of these particular  
11 programs.

12 If I come in with some new material  
13 that's not covered here, then I would have to do the  
14 aging management review, and this has been repeated  
15 for every system at the site, and this is true at  
16 McGuire, Catawba, and Oconee, and it's what we call  
17 a smart chart. It's real simple to use.

18 MR. ROBISON: An example of how the  
19 operating experience may fit, for example, in the  
20 middle of the page where the words "lubricating oil"  
21 are mentioned, suppose an aging phenomenon for  
22 lubricating oil came via operating experience. This  
23 gives you very quick reference to say where have we  
24 credited lubricating oil and what did we do with it.

25 Well, there was no aging effects and no

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1 program was required. Operating experience may  
2 change that in the future. This would then be a  
3 quick reminder of where that's supplied, and then we  
4 could proceed from there to make the changes.

5 CHAIRMAN BONACA: Now, for the  
6 auxiliary, for the other system you have made a  
7 commitment to internal inspection, one internal  
8 inspection, right?

9 MR. ROBISON: I'm sorry?

10 CHAIRMAN BONACA: As part of the -- as  
11 inclusion of an open item, I think you made a  
12 commitment to inspect the internals of this.

13 MR. GILL: Right.

14 MR. ROBISON: Yes.

15 CHAIRMAN BONACA: So that would be under  
16 one of these programs here, right?

17 MR. GILL: Well, it's a separate  
18 commitment that's contained separately. It's more  
19 to gain information to demonstrate that the  
20 chemistry program was okay.

21 CHAIRMAN BONACA: Okay.

22 MR. GILL: So that's a separate -- it's  
23 not --

24 CHAIRMAN BONACA: All right.

25 MR. GILL: It's a commitment to do

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1 inspections. It's not really an aging management  
2 program.

3 MR. ROBISON: These are more the ongoing  
4 programmatic.

5 CHAIRMAN BONACA: Okay.

6 MR. ROBISON: The individual commitments  
7 that may have just a single action to be taken, we  
8 have a separate section in the UFSAR and track them  
9 separately.

10 MR. GILL: We have a separate appendix.  
11 It would be Appendix B that has all of those  
12 committed actions.

13 CHAIRMAN BONACA: Yeah, I understand  
14 that. I just was -- I thought that I would find it  
15 here under aging management even if it is one time  
16 inspection.

17 MR. GILL: Right.

18 CHAIRMAN BONACA: You wouldn't include  
19 it here.

20 MR. GILL: No.

21 The last slide I have is on our  
22 maintenance of records. Once we go through all of  
23 these review processes, we will document the answers  
24 by the 5059, by the mod process, by operating  
25 experience review determinations. All of this will

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1 effectively manage whatever the license renewal  
2 commitments are. So what we have today and any  
3 changes that might occur over the future, we should  
4 have the records available for whenever an  
5 assessment occurs internally, and we do plan to do  
6 those over the next several years, as well as the  
7 NRC inspection that Dr. Kuo mentioned, some time  
8 late in the initial 40 year license.

9           So we will have the records available.  
10 We may or may not have the same people available.  
11 People do change jobs and all of that, but we should  
12 have the records for all of the changes that have  
13 been made. We know where we started. We know what  
14 the changes are, and we should be in compliance  
15 through the 40 year period and the plus 20 years.

16           Any questions?

17           CHAIRMAN BONACA: I appreciate the  
18 presentation. I think it gives us a feeling for,  
19 you know, what you have to do to track it, and of  
20 course, it gives us also -- I mean, this is 20 years  
21 to go before you get into this license period. A  
22 lot of people will have retired by that time, and  
23 now we've got to see how the NRC is going to be able  
24 to track it.

25           But I guess if you have this kind of

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1 structured program, it should be easier to verify  
2 the commitments.

3 MR. GILL: There should be more  
4 efficient inspection, we would think. I've been  
5 through those, and a lot of the preparation for team  
6 inspections is gathering up the records that have  
7 occurred.

8 CHAIRMAN BONACA: Sure.

9 MR. GILL: And if you've got, like you  
10 said, ten, 15, 20 years' worth of records, that's a  
11 lot of information to go back and track through.

12 Another point we were trying to make  
13 when I was talking to McGuire management was there  
14 may be opportunities over the next few years to go  
15 in and look at the pressurizer. If you're there for  
16 some other reason, you need to put that in the  
17 planning schedule, and if they have scaffolding  
18 built and they're already climbing all over the  
19 pressurizer for in-service inspection perhaps, maybe  
20 that's the time to go in and look at the pressurizer  
21 spray head and to start formulating the plans.

22 You don't have to wait until the last  
23 outage at year 39 to do these inspections. There  
24 may be more appropriate, opportune times over the  
25 next five or ten years perhaps that one can do those

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1 inspections.

2 CHAIRMAN BONACA: Now, as you explained  
3 before, you know, in 20 years the plant will look  
4 quite different from what it is today in materials,  
5 in changes. There will be a lot of things happening  
6 there.

7 You do have a process that you have  
8 established to track of those changes.

9 MR. GILL: To keep track of those,  
10 right.

11 CHAIRMAN BONACA: Now, I'm trying to  
12 understand how the NRC will come in with an  
13 inspection and interpret all the changes or verify  
14 commitments to all of those changes. It's going to  
15 be a challenging thing.

16 MR. GILL: I think it will be a  
17 challenge. I think if you break the inspection into  
18 two parts, one of have you completed your inspection  
19 commitments, the one time inspections, if you will,  
20 and how have you maintained the changes that might  
21 have occurred over time, and that will be a  
22 challenge because we're updating the FSAR every two  
23 years or so or in some plants maybe doing it  
24 annually.

25 That's a lot of changes, a lot of plant

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1 mods to go through.

2 CHAIRMAN BONACA: If you change a  
3 component with a different material, the basis for  
4 the commitments that you have given the NRC will  
5 change.

6 MR. GILL: Right.

7 CHAIRMAN BONACA: You will make  
8 decisions on your own that say, well, now we change,  
9 you know, 600 to 690. Therefore, we don't have to  
10 do this anymore.

11 MR. GILL: Right.

12 CHAIRMAN BONACA: Now, you don't know if  
13 the NRC will agree with that assessment.

14 MR. GILL: That's correct.

15 CHAIRMAN BONACA: Is it going to be a  
16 surprise for the inspection team of the NRC to come  
17 in and find that you do not perform a certain  
18 committed function because you have replaced the  
19 material? But you haven't gone back to the NRC to  
20 see if it's okay with them.

21 MR. GILL: Right. It may be a challenge  
22 because of the time lag from the time you made that  
23 change until the inspection actually occurs. If it  
24 changes the FSAR summary description, that would be  
25 part of the update that's periodically sent into the

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1 staff and then reviewed by the staff.

2 It is a concern though, I think, if a  
3 lot of that occurs in trying to reconstruct history  
4 well down the pike when none of us are around.

5 CHAIRMAN BONACA: Well, this tells me  
6 that probably before you enter the renewal period  
7 and if you have an inspection, there may be another  
8 iteration of the SER with additional open items  
9 coming in and a debate on what else you need to do

10 MR. GILL: Yeah, I don't know that --

11 DR. KUO: Dr. Bonaca, if I may comment  
12 on these changes, generally when they make a change  
13 according to 5059, the changes will have to be  
14 subject to three tests, whether the changes will  
15 affect the previous calculation in terms of risk, in  
16 terms of mode of failure and all of that.

17 So if, say, for instance, you talk about  
18 the change of materials, certainly it will change  
19 the failure mode and all of that. So in that case,  
20 my thought is that it probably will have to submit  
21 it to the staff for review.

22 It's their determination whether it will  
23 change the accident sequence or not, but if you do  
24 have a material change, that's a major change in my  
25 view.

1 CHAIRMAN BONACA: Yeah. No, I recognize  
2 there are processes in place, including 5059 that  
3 would allow to track that. I'm thinking about there  
4 are probably 40 or 50 plants in the period of six or  
5 seven years will go into renewal, and that's going  
6 to be a heck of a challenge for the staff to track.

7 DR. KUO: It will be a challenge, yes.

8 CHAIRMAN BONACA: Because this is a  
9 major resource, the demand for the Commission.

10 DR. KUO: Yeah, it will be a challenge  
11 for sure, but the mechanism is there.

12 CHAIRMAN BONACA: Okay. Thank you.

13 DR. KUO: Rani Franovich will make the  
14 staff presentation.

15 MS. FRANOVICH: Good morning. I'm Rani  
16 Franovich. I was the Project Manager for the  
17 staff's safety review of the Catawba-McGuire license  
18 renewal application.

19 And to my right I have Jim Medoff, who  
20 is a reviewer in the Division of Engineering. He  
21 managed the contractor who performed the staff's  
22 review of the aging management of reactor coolant  
23 system and associated components.

24 To my left is Tanya Eaton, who performed  
25 the scoping and screening review for the staff of

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1 fire protection equipment.

2 Before I proceed with my presentation,  
3 I'd like to talk a little bit about my background.  
4 I've been with the NRC for about 12 years; spent  
5 eight years in Region II, where I certified as a  
6 reactor or resident inspector, and McGuire was my  
7 reference plant for certification; spent six years  
8 at Catawba as a resident inspector. So it was a  
9 good segue to come in and manage this license  
10 renewal project, and it has been a pleasure to  
11 manage.

12 MEMBER POWERS: So you know these  
13 plants.

14 MS. FRANOVICH: I know these plants.  
15 So with that, I'll go on and get  
16 started.

17 When we last met, I think there may have  
18 actually been, Dr. Bonaca, 13 SER open items and  
19 then one extra one that we added that was not  
20 documented in the SER, and I'd like to go over the  
21 ones that I think are of most interest to the  
22 members.

23 When we last met, we were in a  
24 disagreement with Duke as to whether or not fan and  
25 damper housings met the scoping criteria for license

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1 renewal. The staff believed they did. Duke  
2 believed that they did not, but ultimately Duke did  
3 identify fan and damper housings associated with  
4 ventilation systems within the scope of license  
5 renewal, provided the aging management reviewers  
6 results for those components. The staff completed  
7 its review of the AMR results, and that resolved the  
8 open item.

9 In fact, there were two open items on  
10 these two issues.

11 Another issue had to do with building  
12 sealant, structural sealants, especially for those  
13 structures where ventilation systems either  
14 maintained a positive pressure or processed  
15 potentially radioactive gases from the buildings.

16 And Duke identified an aging management  
17 program that was satisfactory to the staff for these  
18 structural sealants. It involves a one time  
19 inspection of structure sealants to insure that  
20 there's no cracking or other degradation associated  
21 with aging, and the staff found that to be  
22 acceptable.

23 MEMBER WALLIS: Let's look at, say,  
24 damper housing. Damper housings apparently are in  
25 scope because they do not move, and the damper that

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1 moves is not in scope.

2 MS. FRANOVICH: Correct.

3 MEMBER WALLIS: It seems a little bit  
4 bizarre to make the distinction, but I realize this  
5 is the way it's done. It just seems rather strange.

6 MS. FRANOVICH: Yeah.

7 MEMBER WALLIS: The operation of the  
8 damper depends upon both of these things functioning  
9 right, and it doesn't move very often presumably.

10 MS. FRANOVICH: Right. If you look at  
11 it as kind of like pump casings or valve bodies,  
12 it's really a pressure boundary function that we're  
13 interested in.

14 MEMBER WALLIS: I see. That's what  
15 you're interested in.

16 MS. FRANOVICH: Exactly.

17 CHAIRMAN BONACA: And the interesting  
18 thing is that Duke took the position that the  
19 failure of these components would be identified by  
20 the functional failure of the component itself. I  
21 mean, if you have failure of pressure boundary, you  
22 would see it, the same way in which you would have a  
23 failure of the active component.

24 MS. FRANOVICH: Correct.

25 CHAIRMAN BONACA: But you took the more

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1 strict consistency with award of the rule and the  
2 example of the pump casing. And during the  
3 subcommittee meeting we discussed this, but the  
4 feeling was that it doesn't harm to do a visual  
5 inspection of the passive component anyway, and so  
6 we felt that there was consistency with the letter  
7 of the law and also it was beneficial to have a  
8 walk-down and just look at these components for  
9 physical conditions.

10 MS. FRANOVICH: Correct, and the staff  
11 felt that a minor breach in the pressure boundary  
12 may not reveal itself in a fan surveillance test  
13 failure or a damper failure.

14 And when these systems conveyed  
15 potentially hazardous gases, that's important. So  
16 Duke brought them in scope. Duke disagreed with the  
17 staff, but brought them in scope nonetheless, and  
18 provided aging management results, and it resolved  
19 the open item.

20 MEMBER WALLIS: Well, presumably these  
21 dampers are in some sort of a pipe work or ducting  
22 and everything. That's in scope presumably.

23 MS. FRANOVICH: Correct. The ducting is  
24 in scope.

25 MEMBER WALLIS: So it would be rational

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1 to have the whole encasement in scope, wouldn't it?

2 MS. FRANOVICH: That's the way the staff  
3 felt.

4 MEMBER SHACK: But, I mean, this is an  
5 issue that seems to come up quite frequently in  
6 license renewal space.

7 MS. FRANOVICH: Yeah.

8 MEMBER SHACK: You would think that we  
9 have, you know, provided guidance to sort of settle  
10 this issue by this time.

11 MS. FRANOVICH: Yes. We have issued an  
12 interim staff guidance document on this issue, and I  
13 believe that the status of the document is not yet  
14 final. So once it is final, then we will feed that  
15 guidance back into our GALL report and standard  
16 review plan.

17 PT, did you want to comment on that ISG?

18 DR. KUO: You are correct that we have  
19 issued a draft position to the industry. We have  
20 had meetings, but it hasn't been finalized yet, but  
21 as soon as it's finalized, we will incorporate that  
22 guidance into the GALL and SRP in the next revision.

23 MS. FRANOVICH: Any other questions on  
24 these open items?

25 Okay.

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1                   MEMBER WALLIS: Well, just that they  
2 seem so trivial compared with all of those other  
3 things that matter in the whole system.

4                   MS. FRANOVICH: Okay. Thank you.

5                   Another area where there was a lot of  
6 disagreement between the staff and the applicant had  
7 to do with scoping and screening of fire protection  
8 equipment.

9                   When we last met, Duke had brought  
10 everything into the scope of license renewal that  
11 the staff took issue with, with the exception of  
12 jockey pumps, which maintain pressure of the fire  
13 water system, and manual suppression equipment for  
14 certain areas that the staff felt were potential  
15 fire exposure areas.

16                   To resolve these two open items, Duke  
17 disagreed with the staff on both of them, but  
18 nonetheless brought into the scope of license  
19 renewal an entire pressure maintenance system for  
20 both McGuire and Catawba, which included not only  
21 the jockey pumps, but associated piping. There were  
22 some tanks; there were some strainers for the jockey  
23 pumps, and other miscellaneous equipment.

24                   So they gave us a very full response to  
25 that SER open item to resolve it.

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1                   When it came to the manual suppression  
2 and potential fire exposure areas, the staff was  
3 interested in two areas, in particular. One area  
4 was in the yard, and the other areas was in the  
5 turbine building.

6                   And the staff and applicant got together  
7 and discussed these two areas and the applicant was  
8 able to demonstrate that there weren't any fire  
9 exposure areas in the yard that required manual  
10 suppression to meet the requirements of 10 CFR 5048.  
11 So that was resolved, and the staff accepted their  
12 position.

13                   However, with respect to the turbine  
14 building, the staff felt strongly that manual  
15 suppression capability was necessary to insure that  
16 you could mitigate the effects of a fire even though  
17 the applicant took credit for a three hour barrier  
18 in addition to that to prevent the spread of the  
19 fire.

20                   The staff felt that the fire barrier  
21 really wasn't sufficient alone to meet the  
22 requirements of 5048, and they also needed to put  
23 the fire out. So Duke again disagreed with the  
24 staff, but identified those hose racks within the  
25 scope of license renewal, providing the aging

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1 management review results and an aging management  
2 program for those components, and that resolved that  
3 open item.

4 Any other questions on any of these open  
5 items?

6 MEMBER SHACK: The jockey pumps seem  
7 like another familiar topic in license renewal. Do  
8 we have an ISG for those?

9 MS. FRANOVICH: Well, actually I'm the  
10 lucky person to have written that ISG as a result of  
11 a request from our Region II license renewal  
12 inspector, Caudle Julian, who leads the license  
13 renewal inspection teams in Region II, indicated  
14 that this does come up often. It's not just jockey  
15 pumps, although that's a popular topic of debate,  
16 but a lot of other fire protection equipment as  
17 well.

18 So I've written an interim staff  
19 guidance document on that, with the help of Tanya  
20 and her group. It is out for comment, public  
21 comment, from stakeholders, NEI, Union of Concerned  
22 Scientists, and we haven't gotten those comments  
23 yet. So we're embarking upon dialogue with the  
24 industry on this ISG.

25 DR. KUO: In fact, this subject will be

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1 the discussion of a meeting with the industry on  
2 February the 13th.

3 MEMBER SHACK: Just sort of a general,  
4 you know. How many ISGs are in play at the moment?

5 DR. KUO: We have a total of 14 ISG  
6 right now, but the four of them have already been  
7 finalized. So ten is in active discussion or  
8 development.

9 MR. ROSEN: And the fact of an ISG is  
10 ultimately to be incorporated into the GALL  
11 report --

12 DR. KUO: That is correct.

13 MR. ROSEN: -- and deleted.

14 MS. FRANOVICH: Correct.

15 MR. ROSEN: The ISG, once it is  
16 incorporated in the Gall report, goes away.

17 DR. KUO: That's correct.

18 MS. FRANOVICH: Okay. We had an open  
19 item on volumetric examination of Class 1 small bore  
20 pipe. Duke uses a risk informed approach to  
21 identifying the piping that they perform in-service  
22 inspection of.

23 The staff does not have a problem with  
24 the risk informed inspection approach. However, the  
25 staff felt that there was no guarantee that in their

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1 risk informed identification of piping, small bore  
2 piping would be included in the sample of the  
3 population for inspection.

4 So Duke has specifically committed to  
5 identifying a sample of small bore pipe based on the  
6 potential for degradation, considering a number of  
7 degradation mechanisms, and the staff found that to  
8 be satisfactory, and that resolved that open item.

9 CHAIRMAN BONACA: Is the one time  
10 inspection?

11 MS. FRANOVICH: That is -- I'm sorry.  
12 In the past the staff, I think, has found one time  
13 inspection acceptable, but Duke is actually doing  
14 this as part of their interim.

15 MR. ROBISON: We have already  
16 incorporated risk informed techniques, particularly  
17 in our McGuire ISI plant, and have already  
18 identified small bore locations and have that  
19 ongoing today.

20 CHAIRMAN BONACA: Okay.

21 MR. ROBISON: So it will be an ongoing  
22 part of our ISI plan in the future.

23 CHAIRMAN BONACA: Okay, and these are  
24 acceptable locations, not necessarily risk  
25 significant locations, but the most acceptable ones.

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1 MR. ROBISON: Right, yes.

2 Greg Robison from Duke Energy.

3 MS. FRANOVICH: Thank you, Greg.

4 The other open item had to do with a  
5 rubber expansion joint in the circulating water  
6 system, the condenser circulating water system that  
7 was brought into scope by a request for additional  
8 information and response to that request, but no  
9 aging effects were identified for this component,  
10 this expansion joint.

11 The staff asked the applicant to  
12 consider the effects of ultraviolet radiation since  
13 the expansion joint is located in the yard outside  
14 the turbine building, and the applicant came back  
15 and indicated that there was no operating experience  
16 to indicate that -- I apologize. That's not really  
17 what they said.

18 They said that these expansion joints  
19 were located 30 feet down in a pit where the  
20 circulating water pumps are, and that they really  
21 didn't -- they weren't exposed to much UV radiation.

22 However, the staff felt that there were  
23 other aging effects that could cause degradation  
24 over time and it didn't seem like this expansion  
25 joint could last for 60 years without any

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1 degradation.

2 So the applicant identified aging  
3 effects for this component and proposed a one time  
4 visual inspection of the component to verify that  
5 aging effects are not causing degradation of the  
6 component, and that was acceptable to the staff and  
7 resolved the open item.

8 Any questions on this slide?

9 MEMBER WALLIS: This was a one time  
10 inspection?

11 MS. FRANOVICH: It's a one time  
12 inspection, and the reason --

13 MEMBER WALLIS: Just don't these things  
14 deteriorate over a period of five or ten years  
15 rather than --

16 MS. FRANOVICH: Well, there are two  
17 components that the staff looked at. One is the  
18 expansion joints in the condenser seals or the  
19 condenser seals themselves which are exposed to  
20 somewhat higher temperatures of condensed steam and  
21 circulating water.

22 But the expansion joints that were in  
23 question for this open item are actually just in the  
24 condenser circulating water system itself out in the  
25 yard.

1 MEMBER WALLIS: Cold.

2 MS. FRANOVICH: It can get cold, sure.

3 Oh, I'm sorry. You're talking about the water  
4 itself. Right, it's temperature is typically below  
5 100 degrees from what I understand.

6 MEMBER WALLIS: It doesn't fluctuate  
7 very much.

8 MS. FRANOVICH: Correct, correct. So  
9 there really isn't much experience, much operating  
10 experience to indicate that these things have  
11 failed, and without that operating experience we  
12 didn't feel like more than one time was warranted,  
13 but it will at least verify that there is no  
14 degradation that could be occurring.

15 MEMBER WALLIS: And presumably if it  
16 does degrade, it will leak and then this will be  
17 detected and it will be fixed. It's not as if it's  
18 --

19 MS. FRANOVICH: One would expect so,  
20 correct. It's not a very high pressure system,  
21 correct.

22 MEMBER SHACK: And, again, what's the  
23 timing of the one time inspection? It's before the  
24 end of the license, but obviously you'd sooner wait  
25 a reasonable amount of time to do it.

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1 MS. FRANOVICH: I agree, and it's really  
2 up to Duke. The only thing they're required to do  
3 is have that inspection completed before the period  
4 of extended operation begins.

5 But you're absolutely correct. It would  
6 be more prudent to give it more opportunity to  
7 reveal itself before you inspect it.

8 So with that, I'll turn it over to Duke  
9 and you can indicate, Greg.

10 MR. ROBISON: This is Greg Robison, Duke  
11 Energy.

12 I think the example we used this  
13 morning, the pressurizer spray where the dates are  
14 included in your handout, is an example of the time  
15 frame we would do these inspections on.

16 As Bob Gill mentioned, we will find an  
17 appropriate point in time somewhere toward the end  
18 of the initial four year period. It could be two  
19 years short, five years short, just when we happen  
20 to be there, and we'll go in and do these types of  
21 things, but it will be toward the end of the  
22 initial --

23 PARTICIPANT: Twenty years.

24 MR. ROBISON: -- will not.

25 And one other point. I think this is

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1 Catawba only, and these things are -- physically  
2 you're looking at a component that's about a foot in  
3 length, 42 inches in diameter. So it's not a huge  
4 mechanical component. It's a rather small  
5 component, very much in the bottom of a pump pit out  
6 in the yard.

7 So that was the basis of our it doesn't  
8 see a lot of sunlight, because it's hard to get the  
9 sun to shine that deep into the pump pit.

10 MR. ROSEN: As I recall, there has been  
11 a failure of those components in an operating  
12 nuclear plant, and the results are quite  
13 interesting. It's an amazing amount of water can  
14 come out of those things into the basement, turbine  
15 building basement.

16 MS. FRANOVICH: Then maybe we need to go  
17 back and look at that. Okay. Thank you.

18 Any other questions on this slide?

19 (No response.)

20 MS. FRANOVICH: Okay. We had a couple  
21 of other open items that are related. They had to  
22 do with aging effects and aging management of  
23 concrete structures and structural components that  
24 are not exposed to a harsh environment. Duke's  
25 position was that there are no aging effects, and

1 the staff's position was that there are and that  
2 they need to be monitored.

3 So Duke ultimately disagreed with the  
4 staff. Nonetheless they specified an aging  
5 management program to monitor concrete structures  
6 that are not located in a harsh environment, and a  
7 couple of those concrete components involve  
8 accessible portions of concrete components in the  
9 ice condenser, which they also specified in the  
10 aging management program for. That resolved those  
11 open items.

12 MEMBER POWERS: Can you tell me more  
13 about that one?

14 MS. FRANOVICH: What would you like to  
15 know?

16 MEMBER POWERS: Where it is, how it's  
17 going to be managed, how it's going to be monitored.

18 MS. FRANOVICH: Sure. The aging  
19 management program that they specified is the civil  
20 structures inspection or -- I'm sorry -- the  
21 inspection program for civil structures and  
22 components, I believe. It's a visual inspection  
23 program.

24 MEMBER POWERS: -- accessible?

25 MS. FRANOVICH: For the accessible

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1 concrete, yes.

2 MEMBER POWERS: When I look at the  
3 concrete, it's not the concrete we're interested in.

4 MS. FRANOVICH: Can you repeat your  
5 question?

6 MEMBER POWERS: Well, the issue is the  
7 inaccessible concrete structures.

8 MS. FRANOVICH: The inaccessible  
9 concrete structures. Are you talking about those  
10 that are below grade?

11 MEMBER POWERS: I'm talking about the  
12 ones that are in the bullet two on your slide.

13 CHAIRMAN BONACA: Yeah, you have  
14 inaccessible concrete.

15 MS. FRANOVICH: Right. The open item  
16 had to do with concrete components that the staff  
17 believed were inaccessible in the ice condenser. As  
18 it turned out in the RAI response, the applicant  
19 indicated that this concrete is accessible from  
20 other areas. I think one of the structures was the  
21 -- was it the structural wall that you could see  
22 form the other side? I'm not real familiar with the  
23 details, but --

24 MEMBER POWERS: Maybe Duke can help.

25 MS. FRANOVICH: Do you want to take it,

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1 Greg?

2 MR. ROBISON: Greg Robison, Duke Energy.

3 You're correct. We can access several  
4 of the ice condenser structures from the other side  
5 to do an inspection there. One other point is the  
6 philosophy here for inaccessible concrete structural  
7 areas would be when we did our aging management  
8 evaluation, we looked for environments that were  
9 different from accessible areas, and if we found  
10 one, then we had to make provision to get to that  
11 inaccessible, unique environment somehow.

12 We didn't find any unique, inaccessible  
13 environments. We found out environments of our  
14 exposed concrete similar to our environments of our  
15 inaccessible concrete. So feel good that we can do  
16 our inspections and sampling over in the accessible  
17 area and apply that to all of the concrete.

18 MS. FRANOVICH: Right, but I think I  
19 understand Dr. --

20 MEMBER POWERS: The last time we got  
21 together we discussed a lot about water chemistry.

22 MS. FRANOVICH: Oh, yeah.

23 MEMBER POWERS: A little bit about water  
24 chemistry and the issue of whether you had sulfates  
25 and phosphates and the groundwater.

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1                   Here you had looked at, as I recall, the  
2 sulfate contents and concluded that they were low  
3 enough concentration they were benign. You had not  
4 looked at the phosphate contents.

5                   MS. FRANOVICH: Let me see. The last  
6 time we met, we had looked at pH, chlorides, and  
7 sulfates. Phosphates were not included in that  
8 list. You're absolutely right.

9                   I don't know if David Jeng would like to  
10 address this or if we may have addressed it in the  
11 last meeting, but we did not look at phosphates.

12                   David.

13                   MR. JENG: I'm David Jeng of the  
14 Division of Engineering.

15                   During the last subcommittee meeting,  
16 questions were raised whether phosphate was a  
17 concern. The staff position, based on the expert,  
18 having the main concern are the sulfate, chlorides  
19 and the pH vary. So each of the three parameters we  
20 decided to measure with acceptance  
21 criteria, and phosphate was not particularly of  
22 concern based on our expert evaluation.

23                   MEMBER POWERS: Oh, that's great. What  
24 was your expert valuation?

25                   MR. JENG: It's --

1 MEMBER POWERS: Apatites don't form. I  
2 mean is that what you're telling me?

3 MR. JENG: I am not a chemical --

4 MEMBER POWERS: But you never get the  
5 chemical expert. We only get the reference that the  
6 chemical experts tell us that this is not important,  
7 but he never shows up. Where is this guy? I mean,  
8 he's the guy that believes that apatite doesn't  
9 form. He has no teeth. I know this. I will  
10 recognize this guy because he has no teeth.

11 MEMBER WALLIS: Excuse me. Appetite?

12 MEMBER POWERS: Yeah. It's calcium  
13 phosphate.

14 MEMBER WALLIS: But it's spelled like  
15 "appetite"??

16 MEMBER POWERS: And it's spelled like  
17 "apatite."

18 MEMBER WALLIS: Thank you.

19 MR. JENG: I would like to take back  
20 your very important question and come up with  
21 additional supplemental information.

22 MEMBER POWERS: That's what I heard last  
23 time. I'd like to see it some day.

24 MEMBER FORD: The question was also  
25 asked last time about corrosion of the rebar and

1 whether that would necessarily be detected by a  
2 visual inspection of the outside of the concrete.  
3 Obviously the concrete spalls off and you see it,  
4 but the damage is done before that occurs.

5 What was the resolution of that?

6 MS. FRANOVICH: I seem to recall, and I  
7 could be wrong, and I may need to rely on my staff  
8 or Duke to chime in, that with the staff's feeling  
9 that the groundwater was not aggressive, that the  
10 concrete would be able to prevent the seepage of  
11 water into the rebar, but I'm not sure if that's the  
12 correct recollection or not.

13 If Duke or the staff wants to chime in.  
14 David?

15 DR. KUO: Let me just comment on that.  
16 A long time ago, about ten years ago the industry  
17 had submitted to the staff for review what's called  
18 an industry report, and that included the  
19 containment, office buildings, and all of that  
20 concrete, other Class 1 concrete structures.

21 During the review of these industry  
22 reports, we had a roomful of concrete experts  
23 together and discussed this subject, and that is how  
24 that limit that Rani just read to the committee --  
25 you know, that limit was set during those meetings,

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1 and it really reflects the knowledge in this field.

2 I don't know if that satisfied Dr.  
3 Powers' question or not.

4 MEMBER POWERS: Dr. Powers will be  
5 satisfied when he sees solubility relations and  
6 concentrations and aqua solutions. I mean, having  
7 someone say, "Gee, I've never heard of calcium  
8 phosphate. Therefore it can't be important," is not  
9 a persuasive case.

10 DR. KUO: No. I think what we have  
11 concluded in those meetings, that we never saw an  
12 operating experience in that fashion. That is  
13 basically what the conclusion was from those  
14 meetings.

15 MEMBER POWERS: There are two reasons  
16 that one never sees something. It doesn't occur and  
17 you haven't looked. Okay?

18 Now, there has to be some basis for  
19 concluding that it's not important. That's what I  
20 want to see.

21 DR. KUO: Yes. Well, like Mr. Jeng  
22 said, we will come back to you on that.

23 MEMBER FORD: Could you call us or get  
24 back to us on the rebar corrosion aspect?

25 MS. FRANOVICH: Sure.

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1 MEMBER FORD: In this industry rebar  
2 corrosion is a big item.

3 MS. FRANOVICH: Even if --

4 DR. KUO: I understand that, Dr. Ford.  
5 For that to happen, of course, the concrete has to  
6 crack, and we have several cases like that of, for  
7 instance --

8 MEMBER FORD: The concrete is really  
9 porous, and all you have to do is get water to the  
10 rebar.

11 MS. FRANOVICH: It does degrade.

12 MEMBER FORD: And it's not water any  
13 longer. It's a fairly complex environment once it  
14 hits the rebar.

15 MS. FRANOVICH: Okay. We have an action  
16 item to get back to you both on these two items, and  
17 I'll make sure that the staff gets something to you.

18 But, Dr. Powers, I understand your  
19 question on my slide because I did characterize it  
20 as inaccessible. It turns out that there are  
21 accessible portions of these components. So I  
22 apologize for that confusion.

23 Any other questions on this slide?

24 (No response.)

25 MS. FRANOVICH: We had an open item on

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1 the aging management program proposed by the  
2 applicant to monitor insulation degradation of  
3 electrical cables, in particular neutron monitoring  
4 and radiation monitoring cables.

5 And the staff's feeling was that a  
6 visual inspection of the insulation looking for  
7 deterioration was really not sufficient to insure  
8 that there was no degradation of these cables before  
9 loop accuracy could be effected.

10 The staff has previously accepted a loop  
11 calibration procedure which is a common surveillance  
12 procedure that is already being performed at most of  
13 the nuclear power plants. It ultimately proposed a  
14 combination of surveillance requirements that would  
15 fulfill the loop calibration, aging management  
16 program, and that resolved the open item.

17 Any questions on this item?

18 (No response.)

19 MS. FRANOVICH: That concludes my  
20 presentation of the SER open items. If there are  
21 any other open items that I did not discuss that  
22 anyone has a question on, feel free to ask.

23 MEMBER RANSOM: I had a question on  
24 hydrogen mitigation and the power for those in the  
25 event of station blackout. It was mentioned in some

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1 of the discussion, but is any of that an issue with  
2 these plants?

3 MS. FRANOVICH: Well, it's a timely  
4 topic to bring up because we're involved in some  
5 legal proceedings where that is a concern of one of  
6 our petitioners, and the generic safety issue, I  
7 think it's 189, which involved combustible gas  
8 mitigation with igniters.

9 This is really a current operating issue  
10 of a current concern that the staff is addressing  
11 through the generic safety issue process.  
12 Nonetheless, we did have some contentions that were  
13 proffered by intervenor groups that were admitted  
14 into the proceeding for hearing.

15 The contentions have since been rendered  
16 moot by some staff RAIs, requests for additional  
17 information, and responses from the applicant that  
18 consider information in a Sandia report on direct  
19 containment heating that touches on this very topic.

20 So the status of that legal proceeding  
21 is that the contention has been rendered moot.  
22 Nonetheless there are eight late filed contentions  
23 that are associated with that contention that we are  
24 going to engage in oral argument on in a couple of  
25 weeks here.

1                   So the legal proceedings are still  
2                   ongoing. When we first started out, there was also  
3                   a contention on the potential use of MOX at Catawba-  
4                   McGuire. That contention also was admitted by the  
5                   ASLB, but subsequently appealed by Duke and the  
6                   staff and reversed by the Commission.

7                   There was another contention that was  
8                   certified to the Commission on the potential for  
9                   terrorism at these two plants, and the Commission  
10                  advised the Board not to consider that contention  
11                  for the license renewal proceeding.

12                  So where we are right now is there are  
13                  some eight late filed contentions that are related  
14                  to that very issue, and we're still going through  
15                  that process.

16                  CHAIRMAN BONACA: My understanding, for  
17                  example, for the severe accident mitigation analysis  
18                  is that it's not that it's not an issue. It's an  
19                  issue being dealt with under the current license  
20                  basis.

21                  So, therefore, it was taken out from the  
22                  license renewal proceedings because it was an issue  
23                  that affects actual operations right now in the  
24                  covered licensing basis.

25                  So it's not that it's not being dealt

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1 with. It's begin dealt under a different kind of  
2 process.

3 MS. FRANOVICH: Correct.,

4 CHAIRMAN BONACA: Okay.

5 MS. FRANOVICH: Thank you, Mr. Bonaca.

6 MEMBER POWERS: Am I correct in my  
7 recollection that one of the plants -- I think it  
8 was Catawba -- had an important flooding hazard in  
9 its IPEEE.

10 MS. FRANOVICH: Yes.

11 MEMBER POWERS: And that it has agreed  
12 to mitigate that?

13 MS. FRANOVICH: Yes, sir, I think it  
14 agreed to build flood barriers for these auxiliary  
15 transformers located in the basement of its turbine  
16 buildings, correct.

17 MR. ROSEN: Where the condenser seals  
18 are.

19 MS. FRANOVICH: Pardon?

20 MR. ROSEN: Adjacent to the condenser  
21 seals like we talked about earlier.

22 MS. FRANOVICH: No. Actually those  
23 condenser seals are outside the turbine building.

24 MR. ROSEN: Oh, okay. I have one  
25 concern that comes up. It's really more generic,

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1 not specifically about Catawba or McGuire, and that  
2 isi that we talked to PT about 14 ISGs that are open  
3 that have come up as a result of this and prior  
4 license extension requests.

5 MS. FRANOVICH: Correct.

6 MR. ROSEN: And that those are moving it  
7 through a process to become aspects of the GALL  
8 report, and my question is given that we're learning  
9 things and putting them into ISGs and ultimately  
10 into the GALL, what about the plants that have  
11 previously had their licenses extended? Are they  
12 subject to these new or is there any process for  
13 going back and thinking about the plants that have  
14 previously had their license extended?

15 DR. KUO: Dr. Rosen, it's a real good  
16 question. Yes, we are thinking about it, and we are  
17 dealing with it. Actually for those plants to had  
18 renewal licenses we are considering whether we  
19 should backfit them or not.

20 This is really a -- now that once they  
21 got the renewal license, they are in the operating  
22 reactor space. We have to follow the backfitting  
23 rule. So we are in the process of developing a  
24 procedure to deal with that.

25 MS. FRANOVICH: In fact, I think that

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1 when we develop new ISGs now, we consider the  
2 implications for backfit, and it's part of the  
3 process for developing the ISG.

4 MEMBER POWERS: Let me ask you about  
5 that. It seems like a real good route to assure  
6 there's no -- to inhibit the evolution of our  
7 understanding, you're saying, "Gee, before I develop  
8 an ISG, I have to think about everything that I've  
9 done before," and even though it's a good idea, it  
10 may not pass the backfit rule in those plants that  
11 have license extensions. It's still a good idea.

12 Are you really condemning yourself to  
13 mediocrity in everything that goes forward because  
14 you're wedded to your past sins?

15 DR. KUO: No, it is not. Yes, we will  
16 consider the backfit, but backfit, it doesn't  
17 necessarily mean that we have to ask those plants to  
18 do anything. This is going to become compliance  
19 backfit because of a Part 50 rule.

20 So in the space of a compliance backfit,  
21 there is some consideration as to whether this is,  
22 indeed warranted or not.

23 So in case like, Dr. Powers, you said,  
24 maybe it's a good idea to do it now and later maybe  
25 we really don't have to backfit all the others.

1 It's not an inhibitor for the staff to raise any  
2 ISGs because, you know, in this consideration of a  
3 compliance backfit we do have that -- what do we  
4 say? -- the consideration whether we need, we do  
5 need to backfit or not.

6 So if an issue is a really good idea for  
7 today, for the future applicants --

8 MR. ROSEN: Good enough to get into the  
9 GALL report.

10 DR. KUO: Right, but really it doesn't  
11 warrant any additional action for those plants who  
12 have renewed their license. We wouldn't do that,  
13 but the thing that we were talking about is at the  
14 time of identifying this ISC, must give  
15 consideration of whether there is the backfit needed  
16 or not.

17 For instance, we have four --

18 MEMBER POWERS: That's the part that I  
19 find really troubling. I'm sitting there, and I  
20 said, gee, this is a really good idea, but if I  
21 think about it a little bit, it will never pass the  
22 backfit on those other plants. So I'm not going to  
23 bring this thing up.

24 MS. FRANOVICH: Yeah. I think Bob  
25 mentioned that --

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1 MEMBER POWERS: I think you've got to  
2 separate these things.

3 MS. FRANOVICH: Yeah, when I mentioned  
4 that we consider the implications for backfit, some  
5 of what we put into ISGs don't involve that  
6 potential at all, and so we indicate that when we  
7 issue the ISG, that we've reviewed it and there are  
8 no backfit implications.

9 For others we just indicate that there  
10 are, and that's the kind of review that we do. It's  
11 not a consideration as to whether or not we issue  
12 the ISG or develop the ISG. It's that we indicate  
13 up front whether or not it has those implications.

14 MR. ROSEN: Well, I think the ones that  
15 you say have backfit implications will ultimately  
16 fail the backfit test, substantial additional  
17 protection, 5109 cost-benefit test.

18 So I think Dr. Powers is exactly right.  
19 We are condemned to basically not being able to use  
20 new insights in plants that have previously  
21 licensed. As a process what that means is that  
22 we're not going to do a better and better and better  
23 job.

24 MEMBER POWERS: That's right.

25 MR. ROSEN: We're just kind of stuck

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1 where we are. Whatever kind of insight right now  
2 when you're getting ready to relicense, for example,  
3 Catawba, that's all the benefit that the regulatory  
4 system is going to be able to give. Future  
5 understandings and insights, it will be up to Duke  
6 to decide whether they want to put them in or not  
7 because the regulatory system simply won't be able  
8 to pass the 5109 backfit test, unless -- unless the  
9 staff decides to take a harder line on compliance  
10 backfitting.

11 Now, there you'd have to make the case,  
12 I think that there's some compliance issue under the  
13 relicensing rule brought up by a given ISG. That's  
14 such a revelation that, gee, we wish we really had  
15 thought about it for all of those other plants, but  
16 you know, we're going to go back to the previous X  
17 number of plants that have previously had their  
18 license extended and order them to include it in  
19 their licenses.

20 MS. FRANOVICH: Right.

21 CHAIRMAN BONACA: One aspect is,  
22 however, that many of these issues are really border  
23 line. That's why they've been open until now.  
24 They've been debated, and this is not necessarily  
25 the one for which a hard decision was easy to reach

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1 because it was more like issues were there on the  
2 fence between, for example, the functionality test,  
3 that you have a passive component in a housing  
4 where, you know, the perspective of the licensee  
5 here, it's pretty valid, too. I mean, you could  
6 rely on the failure.

7 So I'm saying these are issues that have  
8 been debated for a long time, and I don't think  
9 they're so significant to the safety of those  
10 plants.

11 MR. ROSEN: I think you're right that a  
12 lot of them are borderline, but I think there are a  
13 number of them that are not, and I'll take the  
14 jockey pumps as one, speaking for the Fire  
15 Protection Subcommittee of the ACRS. You know,  
16 there are some issues that are very plain that ought  
17 to be, to me, that ought to be included in the scope  
18 and treated as with an aging management program  
19 properly, and that's something that I feel badly  
20 about, for the plants that have already had their  
21 licenses extended, have no requirement on their  
22 jockey pumps.

23 MS. FRANOVICH: Well, it's interesting  
24 that you bring up this particular ISG because this  
25 is one that we feel a backfit is not implicated. I

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1 think that the staff supplied the same review for  
2 all previous plants, applicants, and it's a battle  
3 every time, but the staff has gotten those things in  
4 scope that it felt should be in scope or applicants  
5 have already identified them.

6 This ISG was really written at the  
7 request of our inspector to preclude expenditure of  
8 tremendous resources during the inspections,  
9 fighting these issues out. We wanted to get our  
10 guidance out to future applicants to make sure that  
11 they understand that if they don't apply some of  
12 their current licensing basis documents in their  
13 review, there's going to be bumps in the road.

14 So this is one where I think we've  
15 always applied the same standards. We're just  
16 getting the ISG out to avoid unnecessary debate with  
17 future applicants.

18 CHAIRMAN BONACA: Yeah. We do have a  
19 commitment to the Commission to report to them in  
20 the springtime, spring to summer, on potential  
21 improvements to the license renewal process, and I  
22 think it will be interesting to hear from the staff  
23 at one of the upcoming meetings for license renewal  
24 what the issues are and the potential impact for  
25 those plants which have been licensed before, and

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1 they have a different position than those  
2 recommended now by the staff.

3 So that we can have a sense of whether  
4 or not we should have a recommendation for the  
5 Commission.

6 DR. KUO: If I may, Dr. Bonaca, I just  
7 want to make one additional comment. Out of the  
8 four IC I said that we have completed, only one that  
9 we are considering backfit. That's the station  
10 blackout. The other three are not being backfitted.

11 MEMBER SHACK: Yeah, but are you not  
12 considering a backfit because they've always been  
13 included? I mean the fan housings have always been,  
14 you know, a contentious thing. You've always  
15 insisted they go in. I just sort of figured by now  
16 people would stop fighting the battle.

17 I mean it seemed like a waste of  
18 resources. It didn't really change the  
19 requirements. They were always there.

20 DR. KUO: Correct.

21 MEMBER SHACK: And so are these like  
22 that? I mean, they're asking for things that have  
23 been asked in every license renewal. You're just  
24 codifying the guidance.

25 CHAIRMAN BONACA: By the way, jockey

1 pumps have been previously included even at Oconee.

2 MS. FRANOVICH: Right.

3 CHAIRMAN BONACA: That was a disputed  
4 issue, but I remember that you verified it, and then  
5 for Oconee they were put in the license renewal.

6 MS. FRANOVICH: Right.

7 CHAIRMAN BONACA: Anyway, I think we  
8 have an opportunity at one of the upcoming meetings  
9 to hear about what these issues are, what the  
10 exposure would be to the previous licensees for not  
11 doing that. In many cases it may not be exposure at  
12 all because they are already committed to, and so we  
13 have a sense as a committee if we should see this  
14 issue as a recommendation to the Commission.

15 MS. FRANOVICH: What can we do to help?

16 I mean would you --

17 CHAIRMAN BONACA: Just simply bring a  
18 list of those --

19 MS. FRANOVICH: A list?

20 CHAIRMAN BONACA: -- how do you call it,  
21 ISGs?

22 MS. FRANOVICH: ISGs?

23 CHAIRMAN BONACA: And then, you know,  
24 maybe tell us if previous applications, in fact, did  
25 not have these commitments in.

1 MS. FRANOVICH: Okay.

2 MEMBER SHACK: Do 14 ISGs include the  
3 one that the industry submitted on environmental  
4 fatigue?

5 DR. KUO: That is correct. That is  
6 correct. The ROIC process actually made it very  
7 clear that anybody, including the public, can  
8 propose an IC. In this case the industry proposed  
9 an IC on the fatigue, involvement to assist fatigue.

10 And let me go back to also the 5109  
11 process. There are two kinds of backfits. One kind  
12 is adequate protection, and Dr. Rosen was right.  
13 Some of these ISGs cannot really pass backfit test  
14 there, but there is also this compliance backfit  
15 just simply because the rule requires that. Okay?

16 That in some cases may be less of a  
17 requirement than adequate protection.

18 MR. ROSEN: Well, when you come back you  
19 can tell us the status of the 14 ISGs and the ones  
20 that you think need to be backfitted, whether they  
21 fit the 5109 test or whether they would rise to a  
22 compliance backfit as PT has suggested.

23 DR. KUO: Right. We will come back with  
24 that as a generic topic.

25 CHAIRMAN BONACA: Okay. Good.

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1 MS. FRANOVICH: Okay. Any other  
2 questions on my presentation?

3 DR. KUO: Thank you, Rani.

4 And as a result of this presentation, I  
5 have two take-back actions. One is to provide the  
6 additional information to Dr. Powers on the  
7 inaccessible concrete, and the other is the --

8 CHAIRMAN BONACA: Specifically on the  
9 issue of phosphates?

10 DR. KUO: Yeah, and also the rebar  
11 corrosion.

12 CHAIRMAN BONACA: Oh, the rebar.

13 DR. KUO: And also, Dr. Rosen, you  
14 mentioned that there was some operating experience.  
15 I'm sorry. Dr. Rosen was talking about the  
16 operating experience related to the seal, the pump  
17 seal.

18 MR. ROSEN: I will talk to you off line  
19 about that.

20 DR. KUO: Okay, okay. And if you can  
21 just hold a moment and let me check, maybe Mr. Hans  
22 Asher here would say something about concrete.

23 Hans, the question is: how do you deal  
24 with the aging management of an inaccessible area  
25 concrete? The fact that we had some limit, but --

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1       yeah. Go ahead.

2                       MR. ASHER: Well, the way we approach in  
3 GALL, the issue of inaccessible area, for  
4 containment, for example, they are supposed to look  
5 at just by the rule, regulation requires them to --  
6 applicant's licensees to look at the area,  
7 inaccessible area when there's some finding or  
8 there's some symptoms of degradation or corrosion in  
9 certain areas in containment surface. So they are  
10 to look into it. Regard the number of licensees  
11 have done that historically, and I get so many  
12 reports on this kind of a thing, like the junction  
13 of liner plate and the concrete interface. There's  
14 always corrosion there, and they are investigating  
15 throughout.

16                      Now, for the other areas, for example,  
17 which are in the basement areas, which are normally  
18 emitted by soil, by another structure or something,  
19 and so in that area what we did in GALL was to  
20 establish some safe limits for certain contaminants  
21 which could degrade concrete competence.

22                      There are three items that we felt and  
23 NEI, NUMARC at that time, agree with those three  
24 items and therefore limited the SEC (phonetic).  
25 Three items are the chlorides, the sulfates, and the

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1 pH level of the soil, water which is surrounding  
2 that particular concrete item.

3 For chloride I think we set 500 ppm as  
4 the limit. For sulfate, we set at 1,500 ppm, and  
5 for pH where we said anything lower than 5.5 pH  
6 level would be something that we would have to  
7 further evaluate and see what is the degradation or  
8 what they plan to monitor those areas.

9 This is what we have right now on the  
10 license renewal context.

11 MEMBER POWERS: Is there a hint of a  
12 reason for choosing 500 ppm for chloride instead of  
13 650 ppm?

14 MR. ASHER: Please?

15 MEMBER POWERS: Why 500 ppm instead of  
16 650?

17 MR. ASHER: Yeah, okay. That is a value  
18 that we picked up from American Concrete Institute's  
19 direct reports in American Concrete Institute. One  
20 is ACI 222, which is simply related to the corrosion  
21 related event for reinforcing bars mainly in  
22 concrete.

23 And secondly is ACI 318. After 1980,  
24 ACI 318 established certain requirements for  
25 chloride even in fresh concrete, not in the concrete

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1 which is hardened concrete, but in the fresh  
2 concrete also, and based on what we understood and  
3 what we knew about, I think we felt that 400 ppm is  
4 a safe limit.

5 Industry and we had dialogue of this  
6 particular item for a long time in the 1993 to 1995,  
7 1996, before it became a part of NUMARC document.  
8 What is it technically we're using? Understanding  
9 industry report.

10 So that is where it was established for  
11 inaccessible areas.

12 MS. FRANOVICH: I just wanted to add to  
13 that that the last time we met the staff had a  
14 slide, and I still have it with me. I can put it up  
15 on the overhead projector, of the data that Duke had  
16 collected over the last 20-plus years. These are  
17 lake water data that indicate what the pH, chloride  
18 and sulfate levels have been.

19 And the staff's basis for determining  
20 that the groundwater was not aggressive is based on  
21 these data. So if you would like to see them, I can  
22 put them up. I have them right here.

23 MEMBER POWERS: Well, I mean, you did  
24 show them to us before.

25 MS. FRANOVICH: Yeah.

1 MEMBER POWERS: And they elicited  
2 exactly the same response. There's no phosphate  
3 indication there. It is not a useful thing to take  
4 lake water and then infer that is what groundwater  
5 is. The two are just not the same. Okay? Because  
6 if nothing else, the groundwater goes through the  
7 ground.

8 The acceptance of 500 ppm for chloride  
9 and 1,500 ppm is always referred to ACI 318. ACI  
10 318 does not tell you why they took those values.  
11 So you haven't got a clue why the staff is doing  
12 things. Okay?

13 I give in on ACI 318. You're accepting  
14 an industry standard there, and the Commission says.  
15 It's not consistent with what we expect from the  
16 staff, which is a good science based understanding  
17 of what it's requiring, but okay. There's a point  
18 where you give up and say, "Okay. We'll take it."

19 But now we raise this issue of  
20 phosphate, and all we hear is the experts say it's  
21 not important. We know positively that appetites do  
22 form, that they're volumetrically large, that they  
23 cause spallation in the intragranular,  
24 interaggregate spaces, and for the same reason that  
25 gypsum formation causes concrete spallation. So why

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1 shouldn't they be considered?

2 I mean, I never get an answer to that,  
3 except the experts say it's not important. The  
4 experts could well be right. I just don't  
5 understand why.

6 MS. FRANOVICH: Perhaps what we need to  
7 do is take a look at the same references that you're  
8 familiar with and see if we can --

9 MEMBER POWERS: Well, you're looking at  
10 ACI 318. I mean, it's kind of a little button on  
11 concrete placement and maintenance. Okay?

12 DR. KUO: Dr. Powers, I guess, you know,  
13 this is really not the forum of the discussion, and  
14 I will take this back and come back to the  
15 committee.

16 MEMBER POWERS: Yeah. I'll just simply  
17 say I've heard that before.

18 DR. KUO: Okay. If there are no other  
19 questions, that concludes the staff's presentation  
20 on the SER for McGuire and Catawba license renewals.

21 Thank you.

22 DR. KUO: And, Dr. Bonaca, this  
23 concludes the staff's presentation.

24 CHAIRMAN BONACA: Thank you.

25 I would like to go around the table here

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1 and see if any of the members have additional  
2 questions for the staff or for the licensee.

3 Insofar as this information on having to  
4 look for additional information on the issue of  
5 concrete.

6 DR. KUO: Right.

7 CHAIRMAN BONACA: Okay, and --

8 DR. KUO: I will come back and arrange  
9 with the ACRS staff and see.

10 CHAIRMAN BONACA: Yeah. Please speak  
11 with me and se can set up a time.

12 DR. KUO: Certainly.

13 MEMBER APOSTOLAKIS: So can we write a  
14 letter then?

15 CHAIRMAN BONACA: Could you also include  
16 the rebar?

17 MEMBER APOSTOLAKIS: I think first we  
18 should write a letter.

19 CHAIRMAN BONACA: I'm sorry.

20 MEMBER APOSTOLAKIS: Aren't we supposed  
21 to write a letter this time?

22 CHAIRMAN BONACA: Yes, but hopefully we  
23 can hear something before.

24 MEMBER APOSTOLAKIS: Huh?

25 CHAIRMAN BONACA: We can hear maybe

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1 something from the staff before we get to that.

2 MEMBER APOSTOLAKIS: Oh, before.

3 CHAIRMAN BONACA: And then we will look  
4 at that.

5 MR. ROSEN: And we have an issue that  
6 maybe we don't address in the McGuire and Catawba  
7 letter, but we address in our opportunity to talk to  
8 the Commission about improvements to the license  
9 renewal process about previously relicensed plants  
10 no being able to gain the benefit of new GALL  
11 provisions.

12 CHAIRMAN BONACA: That's right. So we  
13 will handle it that way under that umbrella.

14 Okay. If there are no further questions  
15 on this issue, I will thank the staff for the  
16 presentation. I think that the SER was, in general,  
17 a very quality document. So I commend you for that.

18 And with that we'll take a break. Since  
19 we're ahead of time, we'll start the meeting at  
20 10:20.

21 (Whereupon, the foregoing matter went  
22 off the record at 10:04 a.m. and went  
23 back on the record at 10:31 a.m.)

24 CHAIRMAN BONACA: Let's resume the  
25 meeting.

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1           The next item on the agenda is the draft  
2 regulatory guide, the G-1107, "Water Sources for  
3 Long-Term Recirculation Cooling Following a Loss of  
4 Coolant Accident," and Draft Generic Letter 2003-XX,  
5 related to the resolution of GSI 191, "Assessment of  
6 Debris Accumulation on PWR Sump Performance."

7           And Dr. Wallis will guide us through  
8 this presentation.

9           MEMBER WALLIS: Thank you, Mr. Chairman.

10           We heard about this issue in 2001. It  
11 concerns the debris which is released into a  
12 containment building during a LOCA, for instance,  
13 and it falls or it is transported in the building.  
14 It may reach the region of the strainers for the  
15 pumps which are relied upon for long-term cooling by  
16 recirculation.

17           And the question is: what is the effect  
18 of this debris on the functioning of that system?

19           We wrote one of the shortest letters  
20 we've ever written in September, on September 14,  
21 2001, where we said the NRC staff should  
22 expeditiously resolve GSI 191, and we stated if  
23 plant specific analyses are required, guidance for  
24 performing these analyses should be developed.

25           The staff has now prepared a generic

1 letter, which is their answer to resolving the  
2 issue, and they have, along with that generic  
3 letter, prepared a draft guide, a reg guide which  
4 will provide this guidance for performing the  
5 analysis which the licensees will be asked to do.

6 And so things are moving along. The  
7 Thermal Hydraulic Subcommittee heard about this a  
8 couple of days ago, and the staff is here today to  
9 present to the full committee. I think Gary Holahan  
10 is going to start us off.

11 Please do so, Gary.

12 MR. HOLAHAN: Thank you.

13 My name is Gary Holahan. I'm the  
14 Director of the Division of Systems Safety and  
15 Analysis at NRR.

16 The NRR and the research staff will go  
17 through and present you the details of the generic  
18 letter and where we're going on this issue. I just  
19 wanted to make a few introductory remarks to remind  
20 the committee that there was a research study that  
21 we're basing our actions on, and basically the  
22 conclusions of that research study was that PWR sump  
23 concerns were credible, but that we couldn't really  
24 address them without more plant specific  
25 information, and that's what led us to the path of

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1 going out and getting more information, involving  
2 licensees and also developing technical guidelines  
3 by which we can judge the status of individual  
4 plants and what sorts of corrective actions might be  
5 needed and whether those corrective actions were, in  
6 fact, sufficient. And you'll hear about that in our  
7 presentations today.

8 The reason we're here with the committee  
9 is because this activity involves both the  
10 resolution of a generic safety issue for which the  
11 ACRS' role is important, and it also involves  
12 generic communication for which both the CRGR and  
13 the ACRS have roles.

14 And I think although it is sort of  
15 voluntary for the ACRS to involve itself in a  
16 generic letter, I think it makes sense in this  
17 context since it's an important one and also because  
18 it really is the key resolution path to the generic  
19 safety issue itself.

20 May I have the second viewgraph?

21 One thing I wanted to make clear, and  
22 you won't hear this too much later on in the  
23 presentation because most of what we're talking  
24 about is forward looking in how we're going to  
25 resolve the issue, but to remember that we always

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1 ask ourselves the safety questions.

2 Why is it okay to continue operation, if  
3 that's appropriate?

4 How long would that be appropriate? We  
5 recognize there are a lot of issues that can't be  
6 resolved on a short term basis. It requires  
7 information.

8 So when a generic safety issue is first  
9 identified, we have to ask ourselves: why is it  
10 okay to allow plant operation while we're studying  
11 it?

12 We also have to ask that question on a  
13 sort of continuing basis. Whether a generic letter  
14 or a bulletin or an order or whatever action we  
15 take, there are some time frames involved and  
16 implied, and we have to ask ourselves, again, are we  
17 comfortable with the information and the state of  
18 the plants so that we can in this case take the time  
19 to develop guidance, to send out a generic letter,  
20 in this case even send it out in a draft form for  
21 public comment.

22 And so we're just going to remind the  
23 committee that we do such things, that we consider  
24 things such as the probability of meeting the sump,  
25 what compensatory actions are possible, the

1 advantage one has from a leak-before-break point of  
2 view, the fact that there are some additional  
3 margins which because we didn't do plant specific  
4 analyses may be available as you'll hear in the  
5 discussions.

6 What we really looked at was areas and  
7 concerns about losing net positive suction head to  
8 the recirculation or containment spray pumps. But,  
9 in fact, there's some margin in that approach.  
10 There's more margin than just the design margins,  
11 and we don't give credit for containment over  
12 pressure and those sorts of issues.

13 We also are --

14 MEMBER POWERS: Gary, is that a  
15 universality? I think you do give credit for  
16 containment over pressure in some cases.

17 MR. HOLAHAN: For the boiling water  
18 reactors.

19 MR. ARCHITZEL: There are a couple PWRs  
20 where over pressure, very few, but as part of this  
21 process, we are recognizing that over pressure that  
22 we're carrying, and that's part of the regulatory  
23 guide changes. Our practices are incorporated into  
24 the reg guide that's in front of you, and it is the  
25 minimal possible. You do a different analysis.

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1 There are very few PWRs, more BWRs, but there are  
2 some that have over credit pressure, not total, but  
3 partial.

4 MR. HOLAHAN: In addition to that, we  
5 are aware and have been working with the industry on  
6 some interim actions they're taking even before we  
7 issue the generic letter. They've been, I think,  
8 rather proactive in responding directly as a result  
9 of the research study before waiting for our generic  
10 letter to go out.

11 And so a number of plants have been  
12 following a guidance from generic program developed  
13 through NEI of looking at maybe not the issue in all  
14 of its ramifications, but at least looking at where  
15 they are with their particular sump; certainly doing  
16 walk-downs in containment and looking at cleanliness  
17 and related issues.

18 And there are at least two PWRs that  
19 have decided already to make improvements to their  
20 sumps. So the combination of these things together  
21 gives us enough comfort for moving ahead on a  
22 schedule that we've proposed. These considerations  
23 don't make the issue go away. They don't completely  
24 resolve the issue. We think it's still an important  
25 issue and it needs to be, you know, driven to an

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1 appropriate conclusion.

2 But at least there's a certain comfort  
3 level that we're going to maintain safety in the  
4 interim.

5 If I could have the fourth viewgraph.

6 MEMBER WALLIS: This is somewhat vague,  
7 the word "a certain comfort level." It would be  
8 nice if you had a more specific measure of this  
9 comfort about maintaining safety.

10 MR. HOLAHAN: Well, part of the  
11 difficulty is the nature of this issue. The fact  
12 that we have to go out and get plant specific  
13 information leaves us in a condition where we can't  
14 definitively say how much margin there is at any  
15 given plant. So part of the imperative for getting  
16 the generic letter out is so that we are more  
17 informed, but I think --

18 MEMBER WALLIS: So you don't know enough  
19 to make this assessment that I want more specific.  
20 The information isn't there.

21 MR. HOLAHAN: That's correct, and I  
22 think if it were, perhaps we'd be approaching the  
23 issue a little differently. So if we knew that  
24 there were three plants that had very little or no  
25 margin, then we'd deal with that differently.

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1 MEMBER WALLIS: I think we determined at  
2 the subcommittee meeting this is what you are going  
3 to do. You're going to find out this information.

4 MR. HOLAHAN: that's right.

5 MEMBER WALLIS: Then it may be clear  
6 what specific actions you need to take.

7 MR. HOLAHAN: Yes, indeed.

8 And what information? I mean, we may  
9 very well accelerate our activities on a few plants  
10 that are problems and may be more tolerant of plants  
11 that have only minor issues.

12 MEMBER WALLIS: Okay.

13 MR. HOLAHAN: The three major activities  
14 that are going on really have to do with a draft  
15 regulatory guide, which is really a revision to  
16 Regulatory Guide 1.82.

17 An industry initiative activity, which  
18 is developing specific technical guidance that can  
19 be used by individual plants to test where they are  
20 with respect to this issue and what they need to do  
21 and the generic letter itself, which is our  
22 regulatory tool for kicking off that activity.

23 At the bottom of the viewgraph you see  
24 basically the closeout activities are after the  
25 generic letter goes out we'll get responses from

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1 each plant. We'll review those. Hopefully in a  
2 short order, because of the guidance available, we  
3 think maybe this can be an efficient review; come to  
4 closure on what actions we think need to be taken  
5 and on what time frame.

6 Where there are some difficult or  
7 technical issues, we may do sample audits or  
8 independent calculations as we did for the case of  
9 the BWR sump strainers, and in the normal course of  
10 action, we would issue a temporary instruction,  
11 which is an instruction to our resident inspectors  
12 to see that appropriate closeout activities are  
13 taken.

14 So that's a general overview of where we  
15 are and how the program works, and what we're going  
16 to do today is kind of walk you through the  
17 structure and the technical expectations in the  
18 generic letter.

19 John Lehning, are you going to do that  
20 for us? Ralph.

21 MR. ARCHITZEL: Well, I'll try and go  
22 through quickly. My name is Ralph Architzel. I'm  
23 with Plant Systems Branch at NRR. I'll try and  
24 quickly go through some of my slides from the other  
25 day.

1 Can I have the next slide, John?

2 First, I'd like to note that Generic  
3 Safety Issue 191 is related to the Regulation 5046  
4 and Criterion 35 for long-term recirculation. It's  
5 sort of critical. We consider this a compliance  
6 issue in some instances, and those are the  
7 regulations involved.

8 As Gary has mentioned, the reblockage  
9 may prevent the injection of water into the reactor  
10 core or containment spray operation.

11 Of note, USI A-43 did examine this. It  
12 was principally focused on vortex formation, along  
13 with debris blockage by fibrous insulation. It was  
14 closed in 1985 with a recommendation going forward  
15 that mechanistic analyses be performed by licensees  
16 as they changed out insulation, et cetera.

17 A specific decision was made not to  
18 backfit at that that time as it wasn't cost  
19 beneficial, but forward looking plants had to do  
20 deterministic analyses, and the current fleet of  
21 plants should consider that when they changed out  
22 insulation because of the expenses involved.

23 So GSI-191 was opened in 1996 because of  
24 events that happened at the BWRs and also because of  
25 new information during the BWR resolution that was

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1 identified, such as the thin bed effect and other  
2 aspects of that. So we reexamined USI A-43 and  
3 resultant GSI-191 being initiated. Research  
4 completed their technical assessment, concluding  
5 that there was a sufficient basis to conclude it's a  
6 credible concern, and we're in the process of  
7 developing regulations.

8 The current generic letter you have in  
9 front of you today is based on a -- has actions that  
10 require us to consider this a compliance backfit.  
11 So now we're reversing that position at least in the  
12 draft staff position and considering this to be a  
13 compliance backfit issue associated with the generic  
14 letter.

15 We realize this is a pre-decisional  
16 document. We still have to go through the CRGR. At  
17 the moment it is a compliance backfit.

18 MEMBER APOSTOLAKIS: What is it that --  
19 let's go back. What is it that USI A-43 missed when  
20 you closed it?

21 MR. ARCHITZEL: The principal concern  
22 was the new information. I mean it didn't miss that  
23 much. It did say we have a 50 percent criteria on  
24 blockage of some screen that we put out with not a  
25 good, sound basis way back in the beginning. It

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1 identified that as being faulted. It picked that  
2 up.

3 What it didn't pick up, the large  
4 blankets and the transport of large fiberglass  
5 break-up, and it finds that new transport, et  
6 cetera, generation should be considered  
7 mechanistically. It didn't have effects like the  
8 thin bed effect where you have a very fine fibrous  
9 in the suppression pool at the boilers that resulted  
10 in those events, and then you have the particulate  
11 debris that goes along with that and can result in  
12 some clogging at much different configurations that  
13 were assessed at the time of USI A-43, some of the  
14 paint chips, you know, different particulates.

15 There was more information that was  
16 identified after that point in time that would  
17 change the balance of a cost-benefit.

18 MEMBER APOSTOLAKIS: And this  
19 information came from where?

20 MR. ARCHITZEL: Well, the Barseback  
21 event, or a lot of research that has been done since  
22 then, the transport mechanisms, how the debris is --  
23 I mean, we had a presentation the other day by Los  
24 Alamos about a lot of the testing they've done, and  
25 there is a lot more information today than there was

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1 then.

2 MEMBER POWERS: I have, quite frankly,  
3 lost track of the experimental bases for a lot of  
4 these discussions. I guess I'm familiar with some  
5 of the Los Alamos sponsored experiments on beds and  
6 things like that affecting the screen.

7 It seems to me that when Los Alamos was  
8 before us, there was quite a lot of discussion about  
9 uncertainties in the analyses of, one, what kind of  
10 debris was formed during a break, what range of it  
11 of area was affected, and the subsequent transport  
12 of that debris from whence it was formed to the sump  
13 itself.

14 Could you give us a thumbnail sketch of  
15 what the experimental support there is for those  
16 aspects of the analyses?

17 MR. ARCHITZEL: Are you talking about  
18 the uncertainties? I'm not -- I mean, if I went  
19 into the parametric and looked at how you took all  
20 of the parametric cases and --

21 MEMBER POWERS: I'm not so concerned  
22 about the analysis itself. I'm trying to recall  
23 what the experimental data base is.

24 MR. ARCHITZEL: It wasn't just the work  
25 Los Alamos did. It also was based on the work that

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1 was done for the boiling water reactors and the  
2 foreign experience in testing.

3 For the generation transport, like the  
4 steam air jet test, there is a tremendous history of  
5 testing associated with this issue, and still  
6 uncertainties, too, as you --

7 MEMBER POWERS: Oh, sure, and there  
8 always will be. I guess what I'm asking really is  
9 do we have reasonable qualitative understanding of  
10 the phenomena associated with first the formation of  
11 the debris and the subsequent transport of it.

12 I mean, you try to calculate transport  
13 of debris particles, and you're going to run into  
14 serious problems knowing what drag coefficients are  
15 used and flow pathways and things like that. I  
16 wonder do we have large scale tests that give us  
17 some confidence that these models that Los Alamos  
18 was using are roughly correct.

19 DR. WEERAKKODY: This is Sunil  
20 Weerakkody. I'm the Section Chief in the Plant  
21 Systems Branch.

22 I can try. I am not familiar about the  
23 historical aspects of this issue, but I have visited  
24 the experimental facilities both at LANL and also at  
25 University of New Mexico which were constructed just

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1 for this purpose.

2 MEMBER POWERS: Incidentally, the folks  
3 at University of New Mexico just before Christmas  
4 invited me down to visit their experimental  
5 facilities, and so I'm reasonably familiar with what  
6 they've done there, and quite frankly, their work  
7 puts a perspective on this that you might not derive  
8 from just looking at the raw paper work.

9 MR. ARCHITZEL: March 4th there's  
10 another meeting coming up at New Mexico, and the  
11 French are coming to that meeting also.

12 MEMBER POWERS: This committee is not.

13 DR. WEERAKKODY: Well, I can try to  
14 answer some of the parameters to the limited  
15 knowledge I have that Los Alamos did look at. One  
16 of the parameters they looked at in the University  
17 of New Mexico facility is how the velocity of -- I  
18 don't know the exact term -- the velocity of water  
19 that approaches the sump, how that affects the  
20 transport of different natures of debris because you  
21 have debris like RMI, and I'm sure you have seen,  
22 you know, that's metallic and what kind of  
23 velocities are necessary to transport that type of  
24 debris up to the screen where it is transporting  
25 things like fiber. What type of velocities are

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1 needed to transport that type?

2 So that was one parameter I know for a  
3 fact that they did look at. Then when I think of  
4 the facility at Los Alamos, you said you have seen  
5 that. In all of there they construct an apparatus  
6 where they have a pump and the screens, and then  
7 they introduce, you know, debris that they would  
8 think would be the type of debris that could be  
9 created during the loss of coolant accidents and  
10 missile delta Ps.

11 So there was real hard data that were  
12 generated to support this issue. I'm not sure I  
13 answered fully all of your questions, but --

14 MEMBER POWERS: Well, I'm sure that a  
15 fool can generate questions that a wise man would  
16 take a lifetime to answer, and so I'll play the fool  
17 here a little bit.

18 MR. ARCHITZEL: And let me just clarify  
19 one thing. If there's a lot of detailed  
20 information, and BP will talk about, second, there's  
21 some knowledge based documents and final  
22 preparation. It's a fairly thick document, but it's  
23 a track record back to the other experimental. You  
24 can go in there and you can go to the other NUREGS  
25 and the other historical aspects.

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1 MEMBER POWERS: I think that's the news  
2 I wanted to hear.

3 MR. ARCHITZEL: And that document will  
4 be useful for industry in resolving this as well,  
5 and BP should be talking about this versus me, but  
6 that's the key document. We've been reviewing that.

7 MEMBER POWERS: So eventually we'll have  
8 a nice handbook that says here's all that we know  
9 about this issue from an experimental point of view.

10 DR. WEERAKKODY: Absolutely right.

11 MEMBER POWERS: I think that's a -- you  
12 guys deserve big credit for pulling that all  
13 together. I hope you do a great job on that because  
14 that would be of historical value. It will be of  
15 value to people designing new reactors. I mean, do  
16 a good job on that one. That's great.

17 MEMBER WALLIS: Dr. Powers, we had a  
18 presentation from Los Alamos at the subcommittee  
19 meeting, and there was quite an extensive give-and-  
20 take, and talked about their ways of approaching the  
21 generation of debris, the way in which they defined  
22 the area in which the insulation was destroyed and  
23 essentially broken up into small particles of  
24 various sizes and fibers and so on, and they  
25 essentially said that for a large LOCA, the material

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1 within that region was disbursed throughout  
2 containment and the velocities and so on.

3 MEMBER POWERS: Well, I know that's what  
4 they say. The question is is that true.

5 MEMBER WALLIS: Well, again, that is a  
6 question. I think one would have to -- someone has  
7 to peer review that and so on, but then that is to  
8 say that they were addressing the questions of  
9 transport in the water with CFD and all of that.

10 So we did have a look at that, and I  
11 guess you're right to say how far do you have to go  
12 to verify that the models are okay.

13 The way this is evolving is that the  
14 ball is very much in industry's court, that generic  
15 letter says you will analyze these things for your  
16 plant because each plant is different, and not only  
17 is it in industry's court, but NEI has promised to  
18 provide the guidance on the matters that you've been  
19 asking questions about.

20 So the success of this process depends  
21 very much on the response of industry and NEI, and I  
22 think the Los Alamos work has been very, very useful  
23 in establishing some of the things one needs to  
24 worry about. It's ongoing, and I hope it results in  
25 the document that you're suggesting, but the process

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1 here is to get the letter out and get information  
2 back from industry and get them to get NEI to  
3 develop this, industry to develop the methods for  
4 analyzing individual plants.

5 MEMBER POWERS: Well, I guess I agree  
6 with you that the strategy that the staff has  
7 approached here seems appropriate. They've done  
8 their analyses enough to see that they have a real  
9 issue here, and then they've said, well, but the  
10 issue really belongs to the industry and now they're  
11 turning it over.

12 I still think that this data document  
13 that you're putting together is just a great idea.

14 DR. WEERAKKODY: There is going to be a  
15 data document. I'd like to add one caveat to what  
16 Dr. Wallis said, which is we have made it clear to  
17 the industry that whenever they develop guidance, we  
18 review them, review our comments. We don't do  
19 safety value in some of them, but even in our  
20 generic letter, we make it clear in that that if we  
21 feel that they're not going in the right direction,  
22 then we would come back and say, 'No. That's not  
23 the first direction. So, you know, we try to the  
24 extent possible work with them, but at the same  
25 time, given the significance of this issue, we keep

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1 an eye on what, you know, is happening on all  
2 aspects.

3 MEMBER LEITCH: Ralph, a few minutes ago  
4 you used the term "compliance backfit." Could you  
5 explain the implications of that?

6 MR. ARCHITZEL: When you do a backfit  
7 like was done with -- the regulatory analysis  
8 guidelines have changed somewhat since '85. They  
9 allow now for compliance backfits. When you do a  
10 compliance backfit, a simplified cost-benefit, it  
11 still needs to be a significant issue, but you don't  
12 need to show a positive cost-benefit.

13 If we had to do a cost-benefit even  
14 today with an industry program and the way the  
15 regulatory analysis guidelines are set up, you have  
16 to factor in that program. You have to do best  
17 estimate with the program, without the program, and  
18 then you do the cost benefit, and that's a  
19 regulatory analysis without a compliance backfit  
20 basis.

21 It would be very hard probably even  
22 still to pass such a program with an industry  
23 program in place, but we can still, even if we  
24 didn't do compliance backfit, we can choose to do a  
25 backfit on that basis. We'd have to do that and

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1 then show a net benefit would go up. That's  
2 noncompliance backfit.

3 Okay. So we could still do that, but  
4 it's unlikely at this stage with an industry program  
5 to pass muster. A compliance backfit says that  
6 considering the way we've established the  
7 guidelines, we don't believe the ECCS system is in  
8 compliance with what we're looking for for long-term  
9 recirculation, those regulations I quoted.  
10 Therefore you need to change your analysis,  
11 mechanistically evaluate that phenomenon, and that's  
12 what we're imposing, is actions in the draft generic  
13 letter.

14 That is pre-decisional. We haven't gone  
15 through the CRGR yet. So we could come back with  
16 this, an information generic letter that wouldn't  
17 have any compliance aspects to it. It has the same  
18 impact, but it's not quite as hard an action as the  
19 compliance backfit generic letter.

20 MEMBER LEITCH: So the main difference  
21 is that a cost-benefit analysis does not have to be  
22 done or has that --

23 MR. ARCHITZEL: A simplified one has to  
24 be done for a compliance backfit, but not a rigorous  
25 one. We still need to do some type of -- and the

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1 one we're referring to now is the one that was done  
2 two years ago by research. You had it in the  
3 package, but it's not a rigorous regulatory  
4 analysis. It would be a different one if we had to  
5 do one today.

6 MEMBER WALLIS: This is really  
7 compliance. I mean, the LOCA system has to work,  
8 and if the debris prevents the system, the mitigated  
9 system, from working, then this is not mitigating  
10 the LOCA.

11 MR. ARCHITZEL: But from a compliance  
12 backfit standpoint, we're changing the way you say  
13 it works. We said 50 percent clean screens or 50  
14 percent blocked is the guidance, and we agreed to  
15 that and we accepted that, and that's how these  
16 plants were designed and operated.

17 So they're in compliance today until we  
18 take an action to say different.

19 MEMBER LEITCH: Okay. Thank you.

20 MEMBER APOSTOLAKIS: So, I mean, this is  
21 telling us what Los Alamos did, but what did they  
22 find? I mean, address testing or knowledge based  
23 uncertainties. Can you tell us in one or two  
24 sentences what the conclusion there was?

25 MR. ARCHITZEL: I've got a back-up. Let

1 me just give you the typical numbers. Whether those  
2 are actually the numbers, we've had numbers  
3 portrayed, how many plants, good, bad, et cetera.  
4 The bottom line was there was a significant  
5 additional core damage frequency projected by the  
6 Los Alamos work.

7 MEMBER APOSTOLAKIS: Okay.

8 MR. ARCHITZEL: For the current  
9 condition it was less of a core damage frequency if  
10 you assume large break LOCA initiating events, and  
11 then if you factor in operator actions, one of the  
12 things in my slide here, to evaluate the potential  
13 recovery actions. We're finishing up with a report  
14 on that right now.

15 Then, for example, in a large break LOCA  
16 case, it might be an increase in CDF on the average  
17 of two, without operator action, it might be like  
18 17. There's numbers like that out there.

19 MEMBER WALLIS: Would you tell him the  
20 number that Los Alamos gave us?

21 MR. ARCHITZEL: Yeah, these are -- I've  
22 got the studies.

23 MEMBER WALLIS: Well, we heard a number  
24 170.

25 MR. ARCHITZEL: Well, that's without --

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1 that number should have been 140.

2 MEMBER WALLIS: It's still a big number  
3 without these other operator actions and so on.

4 MR. ARCHITZEL: But whether that's a  
5 best estimate PRA, you know, there's some question.  
6 We've got -- that's what Los Alamos did for us to  
7 evaluate this associated with the --

8 MEMBER APOSTOLAKIS: And how were the  
9 operator recovery actions evaluated?

10 MR. ARCHITZEL: On the same basis of --  
11 do you mean how many operator?

12 MEMBER APOSTOLAKIS: Presumably they put  
13 some probabilities there.

14 MR. ARCHITZEL: Oh, yes.

15 MEMBER APOSTOLAKIS: How?

16 MR. ARCHITZEL: Like the operator  
17 availability of taking the water storage tank and  
18 getting another source into the refueling water, to  
19 keep the ECS running and whether the operator turns  
20 off the pump and starts it again and can -- if that  
21 would be effective in clearing the insulation.

22 MEMBER APOSTOLAKIS: Do you happen to  
23 recall what model they used for these things?

24 MR. ARCHITZEL: Well, I've got it here  
25 if you're interested. I guess we could give it to

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1 you.

2 MEMBER APOSTOLAKIS: I am interested.

3 MR. ARCHITZEL: It's a draft though.

4 DR. WEERAKKODY: We can provide it to  
5 you later.

6 MR. ARCHITZEL: We can provide it to  
7 you.

8 DR. WEERAKKODY: I don't have the  
9 answer.

10 MEMBER APOSTOLAKIS: Are we writing a  
11 letter on this today? No.

12 MEMBER WALLIS: Do you want to talk  
13 about that now or do you wish to talk about it  
14 later?

15 MEMBER APOSTOLAKIS: Oh, it's up in the  
16 air.

17 DR. WEERAKKODY: But one thing I wanted  
18 to add to what Carl said, Dr. Apostolakis, is in  
19 terms of the knowledge base uncertainty, it's not  
20 just the core damage frequency numbers that the Los  
21 Alamos contributed. If you look at the history of  
22 this issue, for boilers the agency could take a much  
23 more rigorous approach because of events where the  
24 screen was blocked.

25 So in terms of uncertainty, there's

1 quite a bit of certainty that this is a problem, and  
2 the agency issued a bulletin, then a letter, and had  
3 the boilers -- initiate the boilers to address that.

4 When it came to pressurized water  
5 reactors, we have never had an actual case where  
6 sump recirc. was actually demanded. All of the  
7 small LOCA events we had in the industry were  
8 mitigated before proceeding with the sump. recirc.  
9 stage. So it was a case of zero demands and zero  
10 failures.

11 In a situation like that, now you need  
12 some original experimental data to establish the  
13 credibility of what you postulate, and I think the  
14 Los Alamos study significantly contributed to the  
15 issue so that we can engage the industry with  
16 strength in saying, "Look. We did the experiments.  
17 We think there's a potential issue here." So we all  
18 should pay attention and resolve this.

19 So I think if I summarize the knowledge  
20 base uncertainty that LANL contributed, that's that.  
21 In terms of the recovery actions, you know, we would  
22 provide you the numbers and the basis that they gave  
23 us, but I just want to tell you that the type of  
24 operator actions, the operators can take in  
25 situations like this, we don't normally assign. I

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1 don't think they can assign very high failure  
2 probabilities.

3 So whatever are the CDF numbers that we  
4 came with were not --

5 MEMBER APOSTOLAKIS: Now, why is that?

6 DR. WEERAKKODY: Because, again, you run  
7 into situation of limited demands and limited  
8 failures. If you look at the type of operator  
9 actions the operators must take in a scenario like  
10 this, one of the things you talk about is refilling  
11 the RWST, and this has to be done. First there  
12 should be a water source available. Cross-ties have  
13 to be made, and this kind of action has to be done  
14 within a short time frame under stressful  
15 conditions.

16 A second operator action, again --

17 MEMBER APOSTOLAKIS: So wait a minute.

18 DR. WEERAKKODY: Yeah.

19 MEMBER APOSTOLAKIS: Maybe I didn't  
20 understand what you said. You said you cannot  
21 assign verified probabilities of failure?

22 DR. WEERAKKODY: You cannot assign --  
23 oh, well, maybe I used the wrong word.

24 MEMBER APOSTOLAKIS: Because your  
25 argument is you --

1 DR. WEERAKKODY: Yes, yes.

2 PARTICIPANT: Low probability.

3 MEMBER APOSTOLAKIS: A low probability,  
4 but what is a low probability of failure?

5 DR. WEERAKKODY: When you look at  
6 operator actions and the failure probabilities, you  
7 see numbers like .001, .5 and --

8 MEMBER APOSTOLAKIS: For failure?

9 DR. WEERAKKODY: For failure, yes. So  
10 you wouldn't see failure probabilities such as .001  
11 in a situation like this. Again, what I would --

12 MEMBER WALLIS: I'm confused. You will  
13 see big numbers like .5. Is that what you're  
14 saying?

15 DR. WEERAKKODY: Yes.

16 MEMBER WALLIS: If it's .5, it doesn't  
17 matter whether it's failure or success, does it?

18 MEMBER APOSTOLAKIS: But didn't se just  
19 hear that without recovery actions the delta CDF was  
20 very high and then with recovery went down?

21 MR. ARCHITZEL: About an order of  
22 magnitude.

23 MEMBER APOSTOLAKIS: About an order of  
24 magnitude. How do you go down by an order of  
25 magnitude if the failure probability of the

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1 operators is .5?

2 DR. WEERAKKODY: Because it's a  
3 combination of operator actions. You know, again,  
4 what I would rather do is give you a copy of the  
5 report we have because right now I'm speaking from  
6 the overall knowledge I have rather than the  
7 specific numbers that are in this report.

8 But the short answer to your question  
9 would be it is not just one operator action. If you  
10 have a couple of operator actions, such as another  
11 action I know that the operators can take is  
12 stopping and restarting the pumps, and I don't know  
13 how that has been factored into the support because  
14 we just got the report a couple of days ago.

15 MEMBER APOSTOLAKIS: From where?

16 DR. WEERAKKODY: From Los Alamos.

17 MR. ARCHITZEL: But it's delayed  
18 recirculation by not having both trains working, you  
19 know, delayed if you can avoid the containment spray  
20 starting. There's different things that can be  
21 done, and they are factored in there, and they are  
22 analyzed on that analysis.

23 MEMBER APOSTOLAKIS: Yeah, I'd like to  
24 see that.

25 MEMBER LEITCH: Is it not also a factor

1 that even if the operator does all of the things  
2 that this procedure prescribes that it may not be  
3 successful?

4 MR. ARCHITZEL: Right.

5 MEMBER LEITCH: Is that factored into  
6 the issue? In other words --

7 MR. ARCHITZEL: Sure.

8 MEMBER LEITCH: -- I presume the  
9 procedures could prescribe some remedial operator  
10 actions, but they may not be successful at removing  
11 the debris from the --

12 MEMBER APOSTOLAKIS: That's right.

13 MEMBER LEITCH: So is that -- when you  
14 talk about the success of operator actions, are you  
15 talking about the faithfulness with which he does  
16 them versus whether those actions are successful or  
17 not? Are both of those factors included?

18 MR. ROSEN: You fraction for both. You  
19 have an event tree.

20 MEMBER LEITCH: Right.

21 MR. ROSEN: You fraction for both.

22 DR. WEERAKKODY: What you say is  
23 correct, yes.

24 MEMBER LEITCH: Okay.

25 MEMBER WALLIS: The probability of

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1 clearing the screens by playing with the pumps is  
2 probably pretty small, but if you can actually  
3 cross-tie another source of water, then that may be  
4 that you can do that. You know the water is there  
5 and it will probably work. It all has to be worked  
6 out.

7 MR. ROSEN: Well, the first infraction  
8 says that the operator should violate basically his  
9 intuition, which it is not a big accident, and he is  
10 in recirculation, and he should stop recirculation.

11 So what is the likelihood of that?  
12 Well, if he has been trained, it is unlikely or  
13 maybe 50-50 that he will do it. And then the next  
14 is grandiose, and what Leitch just said, and that  
15 begs the question is even if he does it, will that  
16 unplug the sump.

17 Well, we don't have a lot of testing on  
18 that, and maybe it will and maybe it won't.

19 MEMBER APOSTOLAKIS: Maybe it depends on  
20 the context doesn't it?

21 MR. ROSEN: It depends on what?

22 MEMBER APOSTOLAKIS: On the context.

23 MR. ROSEN: Sure.

24 MR. ARCHITZEL: I had better move on.

25 MEMBER WALLIS: I think we should move

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1 on, yes.

2 MR. ARCHITZEL: One thing I want to say  
3 for Los Alamos support, we did contract -- NRR  
4 contracted, and it does bring us the technical  
5 expertise that researchers had devoted to this  
6 topic.

7 I did want to mention that they are  
8 completing a set of calculations for the volunteer  
9 plant, and you did hear or the subcommittee did hear  
10 about some of the results of that the other day.

11 So we are actually going through and  
12 doing a set of calculations to give us a feel for  
13 when the licensees do it for us to be able to  
14 evaluate that.

15 So you heard some of the results of those  
16 calculations two days ago. And --

17 MEMBER WALLIS: Do you want to move to  
18 the next slide?

19 MR. ARCHITZEL: Yes. I would like to  
20 say that we have NEI perform. The Sump Performance  
21 Task Force that has been in place, and they have  
22 been holding regular meetings and interacting with  
23 us since --

24 MEMBER WALLIS: They have been there  
25 since 1997?

1 MR. ARCHITZEL: This issue started in  
2 1996 as a GSI. So they did form in 1997, and they  
3 have been following the work that Research was doing  
4 during the technical assessment, and they were  
5 involved frequently, and going out and looking at  
6 the test facilities. So, yes, they have been around  
7 for a while.

8 MEMBER POWERS: The issue was introduced  
9 on my -- to this committee on my very first meeting  
10 as a member. It brings tears to my eyes.

11 MEMBER WALLIS: Well, you have struck a  
12 cord there, Dr. Powers.

13 CHAIRMAN BONACA: I don't have as much  
14 history on the committee, but why is the burden on  
15 the NRC to perform this research?

16 MEMBER WALLIS: It isn't.

17 CHAIRMAN BONACA: It isn't? Okay.

18 MEMBER WALLIS: I think we ought to move  
19 head. The subcommittee decided that there was quite  
20 enough evidence that this was an issue. And that it  
21 was appropriate that this letter be sent out so that  
22 information could be gathered to resolve it, and  
23 that it should be done expeditiously.

24 CHAIRMAN BONACA: Okay.

25 MR. ARCHITZEL: I would like to note on

1 the industry and in some of these meetings, I will  
2 try and go fairly quickly. On March 28th was the  
3 initial kick-off meeting with our generic resolution  
4 process, generic safety issue, and it does allow for  
5 industry initiatives, and you factor those in.

6 So they did offer one at the initial  
7 meeting, and it is a six-step program. One of the  
8 initial steps of that program was the condition  
9 configuration assessment, and that document was  
10 issued last fall.

11 A lot of utilities are going out there  
12 as we speak assessing the configuration, and  
13 gathering design-basis documents, and getting their  
14 hands together on this issue, so that when the  
15 guidance comes out that they are not starting from  
16 ground zero.

17 They are starting from a base of having  
18 looked at their containment, and assessed the  
19 configuration, and they know where they are starting  
20 from.

21 Additional meetings. I won't go over  
22 what we have done in all of those meetings. Gary  
23 has gone over some interoperability issues.

24 MEMBER WALLIS: All right. Go ahead.

25 MR. ARCHITZEL: We have been reviewing

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1 the guidelines and the ground rules documents, and  
2 the actual guidelines by the industry won't be  
3 coming out until September of this year currently.

4 MEMBER APOSTOLAKIS: So you have a  
5 session at the ANS meeting?

6 MR. ARCHITZEL: We did have a session at  
7 ANS, but it was not well attended.

8 MEMBER APOSTOLAKIS: It was not?

9 MR. ARCHITZEL: Not compared to like the  
10 NEI industry workshop, where you had hundreds of --  
11 maybe a hundred representatives of industry, and  
12 vice presidents, and it was an important issue.  
13 Gary went to that meeting, and so the PWR industry,  
14 the biggest meeting that we have had was that one,  
15 and it was not our meeting. It was NEI's workshop.

16 MEMBER WALLIS: Well, maybe it is  
17 appropriate for me to bring up the issue of how much  
18 one can rely on this NEI evaluation methodology.  
19 The NEI-02-01 is at a very low undergraduate level,  
20 and even less a high school level, where you walk  
21 around the containment and look to see if there  
22 might be some debris.

23 MEMBER APOSTOLAKIS: Junior high maybe.

24 MR. ROSEN: You are very pejorative.

25 MEMBER WALLIS: Well, I'm sorry.

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1 MR. ROSEN: It is quite a bit higher  
2 than that.

3 MEMBER WALLIS: Okay. I'm sorry, but  
4 you get the idea. The main question is that when  
5 you have got this debris how does it come off, and  
6 how is it transported, and does it go to the sump  
7 and all of that.

8 And really we have seen -- the  
9 subcommittee was presented with no suggestion that  
10 these guys were on the way to providing any  
11 guidelines for those important mechanisms. And  
12 maybe it is there somewhere, but we just didn't see  
13 any manifestation of it.

14 MR. ARCHITZEL: Well, the guidelines  
15 that have been put out, the PWR URG guidance  
16 document, the staff did an evaluation for that when  
17 we resolved that issue. The PWR Owners Group has  
18 that document.

19 And to the extent that they follow that  
20 and follow those recommendations, and follow our  
21 SER--

22 MEMBER WALLIS: They are following the  
23 work that you did, rather than developing their own.

24 MR. ARCHITZEL: Well, no, what the BWRs  
25 did.

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1 MEMBER WALLIS: Oh, the BWRs.

2 MR. ARCHITZEL: The BWR URG is a  
3 document that is pretty detailed guidance. They  
4 have not developed and published that yet, but that  
5 is certainly a strong base, and to have that on  
6 where to start them. So it may not be that  
7 difficult to come up with an acceptable guidance  
8 document.

9 But they do have that document, and we  
10 have reviewed and approved that.

11 MR. ROSEN: The BWR containments and PWR  
12 containments are quite a bit different.

13 MR. ARCHITZEL: Yes. I think -- I would  
14 like -- there was a question the other day has there  
15 been any foreign interest. Just yesterday, we did  
16 get an e-mail from two representatives of the French  
17 regulatory agency, and they are thinking about  
18 coming and visiting us next March in that meeting,  
19 and telling us some of their experience with  
20 testing.

21 So we want to brief you a little bit on  
22 a change from the other day. So that next meeting  
23 does have the potential for some international  
24 participation.

25 MEMBER WALLIS: I noticed that the

1 French were cooperating with NEI, but --

2 MR. ARCHITZEL: That is different.

3 MEMBER WALLIS: -- they seem to be  
4 cooperating with you.

5 MR. ARCHITZEL: The French have a  
6 representative -- the French industry have a  
7 representative on the NEI task force, but the  
8 regulator has been doing testing, and they have  
9 asked to come and meet with us, and the regulator is  
10 involved in this issue and trying to resolve it in  
11 France. We didn't know that the other day.

12 Currently, we are planning to issue a  
13 draft generic letter for public comment in the first  
14 quarter of 2003, and then as I mentioned before, it  
15 is pre-decisional.

16 You had mentioned, and we are prepared  
17 to come back and tell you what the results of those  
18 public comments are, and if they are not significant  
19 changes, if that is what I am hearing. It is your  
20 choice. I am hearing that again.

21 And then when the industry evaluation  
22 guidelines come out in September, or potentially  
23 maybe somewhat later than that, we are not positive,  
24 we will meet with you once we have reviewed and made  
25 our comments with that, and we will meet with you

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1 and go over that guidance.

2 We do require ACRS review of the final  
3 resolution of this generic issue, and I will turn it  
4 over to John Lehning for the details of the  
5 schedule.

6 MR. LEHNING: Again, my name is John  
7 Lehning, and I work in NRR, and I work with Ralph,  
8 and we are the technical leads on the GSI 191 issue,  
9 and I am going to go through the generic letter.  
10 And just again it is a proposed generic letter  
11 pending completion of management and CRGR review,  
12 and it is not publicly available right now.

13 MEMBER APOSTOLAKIS: Is there something  
14 that is in the books, or this is what you actually  
15 studied, "General Engineer."

16 MR. LEHNING: It is a title.

17 MEMBER APOSTOLAKIS: It is a title?

18 MR. LEHNING: Correct. Yes, nuclear  
19 engineering is my study.

20 MR. ARCHITZEL: I would like to mention  
21 that we provide you a draft of the generic letter.  
22 There have been changes. We have a redline  
23 strikeout version. If I could pass that out.

24 There aren't substantive -- there are  
25 some changes, but they are highlighted for you, and

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1 so we are dealing with the document that is in front  
2 of our management now.

3 MR. LEHNING: Going to the purposes of  
4 the generic letter, and I am going to move through  
5 the slides pretty rapidly. I mean, the subcommittee  
6 has heard it, and again just what the subcommittee's  
7 biggest interest is was the schedule, and that is  
8 the last slide, and I have a better viewgraph of  
9 that. So hopefully it will be more clear as it was  
10 too confusing before.

11 Again, the main purpose was to inform  
12 the PWR licensees that our research has identified a  
13 problem with the sump screen debris blockage, and  
14 that were culminated with a parametric study.

15 Then there were some additional issues  
16 that were identified in the other research and  
17 analysis that we did on the GSI, and I will identify  
18 what those are.

19 And then we request action as Ralph said  
20 with the compliance backfit, and we request action  
21 to address those with an evaluation and additional  
22 actions.

23 And then finally we ask for information  
24 so that we can identify whether plants are doing the  
25 actions that we request at the completion so that we

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1 can evaluate how well they performed those actions.

2 The phenomenology just really quickly.  
3 The debris generation and the kind of mechanisms  
4 that were are talking about is when the pipe breaks,  
5 and you have really rapid expansion of the  
6 pressurized fluid in there, and you have jet  
7 impingement upon non-robust materials that are in  
8 the path of that fluid.

9 You also have global containment  
10 conditions that can disbond coatings and the like.  
11 You have pre-existing debris sources, which may be  
12 like dust coating on surfaces and containment, and  
13 that that may contend fibrous materials.

14 So you could have for small sump  
15 screens, and that might be a concern, and you might  
16 have enough fiber to cause a thin bed effect, even  
17 with that coating of dust.

18 As far as debris transport, you can have  
19 gravitational settling or water entrainment and wash  
20 down can cause this debris to enter the pool on the  
21 floor of the containment, and then if you have  
22 enough turbulence, or velocity, within the pool that  
23 debris may transport to the sump screen.

24 And then if accumulation patterns are  
25 suspended in the pool, it may tend to accumulate

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1 uniformly. But if it is sliding on the floor, it  
2 may be able to crawl up on the screen as you  
3 accumulate debris.

4 Or if it is a horizontal screen, it may  
5 cover that type of screen. Next slide, please. The  
6 concerns that I have addressed in the generic letter  
7 have to do with sump screen debris blockage, and  
8 there are two issues there.

9 The first is what was examined in the  
10 parametric study, and it focused on the laws of NPSH  
11 margin for the emergency core cooling system pumps  
12 and the containment spray pumps.

13 But in addition to that there is also an  
14 issue with the structural reinforcement of those  
15 screens, and whether they can withstand the  
16 increased head loss that a complete coverage with a  
17 debris bed, as opposed to just a 50 percent  
18 blockage, is a lot greater head loss.

19 So there are concerns with the  
20 structural adequacy. There are also concerns with  
21 debris blocking drains that are in the containment,  
22 like in their fueling cavity, or containment  
23 compartments, where those would block the debris and  
24 you could hold up water there and reduced the net  
25 positive suction head available to pumps.

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1                   And then also if the sump screen is not  
2 adequately sized, there may be debris that is able  
3 to pass through it and block flow restrictions  
4 downstream of that location. The next slide,  
5 please.

6                   MEMBER WALLIS: May I say that all these  
7 methods, all these mechanisms that you talked about  
8 here, Los Alamos has a handle on, and has ways of  
9 dealing with, and has looked at, and your  
10 presentation to the subcommittee gave us enough  
11 confidence that there was a problem, and that you  
12 could make various assumptions and so on.

13                   But it is remarkable how little debris  
14 it takes to plug a screen, for instance.

15                   MEMBER POWERS: As I indicated, I did  
16 have a chance to visit the University of New  
17 Mexico's test facility, and they showed me some of  
18 their thin beds that they create on the sump screens  
19 in their test facility.

20                   And I have to admit that I was very,  
21 very impressed. My intuition was quite wrong about  
22 how little material it takes to cause a clogging,  
23 and it is unfortunate that we didn't bring an  
24 example of that for the members to see.

25                   Not only that, things are time

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1 dependent, and they get different behavior if they  
2 wait over the weekend and do things, and it is  
3 really quite interesting.

4 MR. LEHNING: That is all true, and just  
5 to give an example of what Dr. Wallis was talking  
6 about. Like for say a hundred square foot screen,  
7 if you assume a one-eighth inch thin bed of fiber,  
8 it would only take roughly a cubic foot of fiber to  
9 do that.

10 MEMBER WALLIS: A bucket full of fiber  
11 or a few bucks?

12 MR. LEHNING: Not very much.

13 MEMBER APOSTOLAKIS: Now the mechanistic  
14 evaluation of the susceptibility. What is that?

15 MR. LEHNING: What we are talking about  
16 there is the concerns that I identified before.  
17 Those are not addressed in most or current licensing  
18 bases because they assume that the screen would be  
19 half-blocked and half-open.

20 So the mechanistic part of that refers  
21 to where you have to phenomenology look at these  
22 processes, like the generation transport and  
23 accumulation.

24 MEMBER APOSTOLAKIS: So each licensee  
25 will do this?

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1 MR. LEHNING: Each licensee would have  
2 to do an evaluation of their own plant using these  
3 mechanistic processes.

4 MEMBER APOSTOLAKIS: My understanding of  
5 the work at Los Alamos and other places is based on  
6 very large uncertainties here and it is very  
7 difficult to predict anything. So how can the  
8 licensee do a credible job here to convince you  
9 about that?

10 MR. LEHNING: There are uncertainties,  
11 but the way that -- traditionally uncertainties are  
12 addressed through conservatism. So if a licensee  
13 has an uncertainty, then they would have to address  
14 it that way.

15 MEMBER APOSTOLAKIS: Are you talking  
16 about the sensitivity analysis here, where you assume  
17 that a certain percentage of the screens is blocked,  
18 and then you try to find out what the impact of that  
19 is on the ACCS; or you actually want them to go into  
20 the transport mechanisms?

21 MR. LEHNING: We want them to go into  
22 the generation and the transport, and industry is  
23 developing methodology that all these plants can use  
24 for determining how much debris is generated, and  
25 transport guidance.

1 I mean, each plant has different  
2 conditions for transport and things like that, but  
3 there is going to be a general guidance, and the  
4 staff is going to look at that and comment on it.

5 So each licensee will have to go through  
6 for their plan and apply that guidance to that plan.

7 MEMBER APOSTOLAKIS: Are there any  
8 computer codes that would help you with this?

9 MR. ARCHITZEL: Yes. Los Alamos has  
10 some that industry may avail themselves or may not,  
11 and they did go into them a little bit yesterday.  
12 The BLOCKAGE code that actually accumulates on the  
13 screens, depending on the types of strainers and  
14 screens, and they also have what is called a  
15 CASINOVA code that they went over that steps through  
16 the debris generation part of it from the line  
17 breaks.

18 So there are some codes that are  
19 available, but they may develop their own.

20 MEMBER POWERS: And there are  
21 engineering organizations, engineering consulting  
22 organizations that are actively pursuing this issue.

23 MEMBER WALLIS: George, we had a  
24 representative from NEI at the subcommittee meeting  
25 who stressed the need for plant specific

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1 evaluations, because the plants are very different.

2 MR. LEHNING: Okay. That kind of  
3 covered the evaluation part of it, but then the next  
4 step was to have licensees, PWR licensees to look at  
5 doing intern compensatory measures.

6 And in the version of the generic letter  
7 that was given to the ACRS ahead of time, the  
8 language on that particular issue did change just a  
9 little bit, and that is one of the changes that we  
10 highlighted for you.

11 And it is kind of worded the same way in  
12 the revised that is on the slide here now.

13 MEMBER WALLIS: That is on the slide  
14 now?

15 MR. LEHNING: And then it just says  
16 assess the necessity of them, and then if  
17 appropriate take these actions, rather than  
18 requesting them directly. There is no substantial  
19 change. It's just that a matter of emphasis as far  
20 as that change goes.

21 MEMBER APOSTOLAKIS: So the language is  
22 a little strange?

23 MR. LEHNING: The language is a little  
24 bit more relaxed I guess, but there is no change in  
25 meaning.

1 MEMBER APOSTOLAKIS: Is it possible that  
2 there will be a necessity, but it will be found  
3 inappropriate in implementing measures?

4 MR. LEHNING: That is a language issue,  
5 and I guess we could try to address that.

6 MEMBER APOSTOLAKIS: But that is not  
7 what you mean?

8 MR. LEHNING: Right. I guess  
9 appropriate there means that if it is necessary to  
10 meet requirements.

11 MEMBER WALLIS: They have to report to  
12 you, and you are going to assess or evaluate this  
13 response?

14 MR. LEHNING: That's correct. They will  
15 report what interim compensatory measures they take  
16 in response to the generic letter. So we will be  
17 able to look at that.

18 And then the last bullet there was just  
19 to do plant modifications if you need to comply with  
20 the regulations. The next slide, please. Moving on  
21 to the information request.

22 The generic letter does require a  
23 response as per the regulations. There is a two-  
24 part response, and the first part basically asks for  
25 the plans for doing the walkdown and for doing the

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1 evaluation, and also the plan in term compensatory  
2 measures, but the measures that will be taken.

3 The second part -- well, the first  
4 response is requested 90 days after the letter is  
5 received, and I will have a viewgraph on that  
6 schedule.

7 MEMBER WALLIS: I noticed that your  
8 schedule seems to emphasize the walk down, and I was  
9 a bit pejorative before, but the walk down is simply  
10 inventorying the fact that you do have an insulation  
11 here, and which they probably know already.

12 But there may be some dust and all of  
13 that. That is the easiest part of the whole thing,  
14 and that doesn't solve the problem at all.

15 MR. LEHNING: That's right.

16 MEMBER WALLIS: They have to figure out  
17 does it come off and does it go to the sump, or does  
18 it block the sump, and how big is the strainer, and  
19 everything.

20 And that is the part that really has to  
21 be done. And you don't want to let them say, oh, we  
22 have done a walk down and we don't have to do  
23 anything for another year or something like that.

24 MR. LEHNING: Well, the evaluation, as I  
25 will show on the slide, but the two inputs to the

1 evaluation are the NEI test, which has to provide  
2 that guidance to the industry, and the licensee has  
3 to walk down the containment and get an  
4 understanding of what insulation they have and  
5 confirm that.

6 So those are the kinds of two inputs.  
7 And once both those two inputs are satisfied, then  
8 the evaluation can proceed at that point. And I  
9 will show that on a future slide.

10 And then the second information request  
11 was basically asking licensees what methodology they  
12 used, and what was the result of the evaluation was,  
13 and whether compensatory measures needed to  
14 continue, and plant modification schedules. If we  
15 could go to the next slide, Ralph.

16 This slide discusses the coordination  
17 with the industry as has been mentioned, and the  
18 industry is working to develop technical guidance to  
19 solve the technical issues at stake.

20 The first part of that was the walk down  
21 guidance that licensees would use to perform the  
22 containment surveillance to look at what debris  
23 sources they had in the containment. And the second  
24 part is the actual evaluation methodology guidance  
25 as to what you do with that information that you

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1 have in your plan.

2 The walk down guidance was published  
3 last September, and the revision that incorporated  
4 NRC comments. And the methodology guidance is  
5 scheduled for this coming September 2003.

6 The generic letter tentatively endorses  
7 the NEI program, but we also say that we can issue a  
8 supplemental generic communication if it is not  
9 appropriate in our opinion, and if we have some  
10 exceptions to it. Go to the next slide, please,  
11 Ralph.

12 This slide shows the schedule and a  
13 little bit easier way to understand than before. On  
14 the left column of this graph, we just have the  
15 actions that we are requesting in the generic  
16 letter, and the bars represent the time period over  
17 which those actions will take or is expected to  
18 take.

19 MEMBER WALLIS: Now, this is what I  
20 found surprising and we didn't see this in the  
21 subcommittee meeting.

22 MR. LEHNING: That is correct.

23 MEMBER WALLIS: And you wrote a letter  
24 and it talks about within 90 days of getting the  
25 generic letter, you have to present your plans for

1 containment, and you have to present your plans to  
2 perform the evaluation of the susceptibility of the  
3 recirculation functions, and ECCS, and CSS.

4 So within 90 days, they have to not only  
5 do these containment walkdowns, but they have to  
6 develop their sort of plans for analysis of all  
7 these other things, like transport, and blockage,  
8 and all that kind of stuff.

9 And then there is another within 90 days  
10 of doing that, and they have to actually describe  
11 the actions taken. So the impression given from the  
12 generic letter is that things are proceeding pretty  
13 rapidly with these 90 day periods.

14 Here we look at this time schedule, and  
15 it may be that they don't even do the debris  
16 blockage evaluations until 2006, which is amazing.

17 MR. LEHNING: Well, the language in the  
18 letter is meant to convey the same information as is  
19 up here, and I will just explain why. The first  
20 response is asking for when you plan to do the walk  
21 down and when you plan to perform the evaluations,  
22 and what interim compensatory measures that you are  
23 looking at.

24 So a lot of the reasons why these bars  
25 are long is because of the refueling cycle, and

1 that's how we made the assumption that licensees  
2 would do the containment walkdown in a non-power  
3 condition.

4 So that kind of drives the schedule a  
5 little bit, and just if I explain -- well, like if  
6 the licensees had begun last September, these bars  
7 show that. There is a navy blue part of the bar on  
8 the screen, and there is a green part.

9 If they had begun right when they issued  
10 -- when NEI issued their guidance for the walkdown,  
11 basically the activity would complete at the  
12 termination of the navy blue part of that line.

13 However, if the licensee was not  
14 proactive and waited until the generic letter was  
15 issued to start the walkdown, the green part, they  
16 would not complete that until the green bar.

17 MEMBER WALLIS: But it is conceivable  
18 that a proactive licensee, given the NEI guidance  
19 comes out and is adequate, could actually mitigate  
20 and solve the problem with that plant by part of  
21 this year in the front of that blue part there.

22 And if they were really proactive and  
23 didn't delay, they could by January of '04 there  
24 have solved the problem and everything.

25 MR. ARCHITZEL: Well, as Gary mentioned,

1 some have already done it, at least one.

2 MEMBER WALLIS: So we are just looking  
3 at the laggards who might be waiting until '06.

4 DR. WEERAKKODY: For example, Davis-  
5 Besse has already -- or has installed or is  
6 installing a new screen.

7 MEMBER WALLIS: Well, the fact that they  
8 might, there is no problem with that plant.

9 CHAIRMAN BONACA: Well, in fact, this  
10 agency seems to be relying on the comfort that was  
11 talked about before, that it would be for plants  
12 that have susceptibility to CRMD cracking, and you  
13 would have some additional expectation of more  
14 promptly looking at the sumps? I mean, that seems  
15 to be the logic.

16 If you are looking for comfort, maybe  
17 that is where you have less comfort.

18 DR. WEERAKKODY: I may not directly  
19 answer the question that you raised, but one of the  
20 things to put this picture in context, this is for  
21 plants which conclude degraded, but operable. In  
22 other words, it is difficult, if not impossible, for  
23 us to say that your plant needs some screening which  
24 is not operable.

25 But when we get the generic letter out

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1 there may be some plants which concluded for  
2 themselves that it is inoperable and then replace  
3 it. But there would be a number of plants which  
4 would say we are in good condition, and something  
5 relevant to what you said in terms of the CRDM  
6 cracking and then that relates to this issue.

7 It did come up for Davis-Besse, and in  
8 fact this question came up yesterday regarding the  
9 type of debris that is near the CRDM, and that is  
10 specific to transport, for example, for that area.  
11 And if you have mostly (inaudible), then that is  
12 what you would generate.

13 And then looking at the (inaudible)  
14 velocities, and given injection and by the time that  
15 you reach the recirculation state, you don't have  
16 much turbulence in the sump, that type of debris  
17 would most likely be deposited wherever they are  
18 rather than transported into the screen.

19 MR. HOLAHAN: I think I agree with  
20 Sunil's summary. I am not particularly concerned  
21 about control rod drive mechanisms, because  
22 certainly from Davis-Bessie there was I think no  
23 fibrous material in that area.

24 And it is not such a direct path for  
25 producing that debris and getting it to the sump. I

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1 think there are probably a number of factors that  
2 might make you more concerned. Things like the size  
3 of the screen, or in fact whether there are pipes  
4 width, and fibrous insulation within the vicinity of  
5 the sump are probably more important considerations  
6 to driving a licensee for the need to do early  
7 implementation.

8 MEMBER WALLIS: So when you get the  
9 responses, the first response to the generic letter,  
10 you are going to do some assessment of  
11 susceptibility of these plants, and there may be  
12 some that you need to encourage to move up their  
13 response to the second part?

14 MR. LEHNING: At that point, we will  
15 make a judgment. I mean, they will tell us what  
16 their schedules are, and we will have to look at the  
17 information that we have, and make a determination  
18 on whether that is acceptable and satisfactory in  
19 conjunction with that information.

20 MEMBER WALLIS: Well, I would hate to  
21 have things still going on to resolve this issue  
22 when Dr. Powers is no longer a member, since he came  
23 on when it started, and that was -- it is going to  
24 be a period of 10 or 12 years since he came on by  
25 the time we finish.

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1 CHAIRMAN BONACA: There is a finite  
2 chance that some of these plants may prove to have  
3 had an inoperable recirculation system for 10 years.

4 DR. WEERAKKODY: Yes, you can't rule  
5 that out. I think the short answer to Dr. Wallis'  
6 question is, yes, one of the things that we have  
7 going for us is the significant amount of  
8 information that the Office of Research has  
9 generated for us as a knowledge base.

10 For example, even though there are a  
11 number of parameters that are uncertain, we can  
12 (inaudible) determine what are the critical  
13 parameters are. For example, if a plant, a  
14 particular plant has a horizontal, as opposed to  
15 vertical, screen that is of a very small size, we  
16 would definitely look at the response from that  
17 plant very closely, compared to a different plant.

18 So even though we don't have answers to  
19 every question or every uncertainty, we do have  
20 enough information to engage the licensees  
21 effectively.

22 MR. ROSEN: No licensee should be  
23 surprised by this when the generic letter comes out  
24 in August.

25 MR. ARCHITZEL: Well, they have public

1 comment as a minimum version.

2 MR. ROSEN: So the licensees should be  
3 on notice now that something is in the works.

4 MR. ARCHITZEL: They have been on notice  
5 for over a year. All these groups have been brought  
6 in and so all the utilities -- NEI has done things  
7 like sending out letters that say be careful when  
8 you change insulation for this issue, and that has  
9 gone to all of the utilities. So they are informed  
10 of this issue.

11 MR. HOLAHAN: It is important to  
12 remember that these time frames don't supersede the  
13 licensees ongoing responsibilities to have operable  
14 systems based on their tech specs to deal with  
15 degraded and non-conforming equipment according to  
16 Appendix B and the time frame for corrective action  
17 based on the safety significance.

18 So those are all folded together. So my  
19 expectation is that if a licensee has through this  
20 information makes a determination that they have an  
21 inoperable ECCS, they know what to do. And we are  
22 not talking about years. We are talking about  
23 hours.

24 And if they have a degraded condition  
25 that is too significant to allow two cycles, or for

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1 corrective action, I expect them to be implementing  
2 their normal programs in dealing with that issue.

3 MEMBER WALLIS: When will you have this  
4 document that Dr. Powers is asking for that puts  
5 together the work from Las Alamos and says here are  
6 the problems and here are the methods?

7 MR. JAIN: We plan to issue this month.  
8 It is scheduled to be issued this month.

9 MEMBER WALLIS: This month?

10 MR. JAIN: Yes.

11 MEMBER WALLIS: So it will be ahead of  
12 the NEI document?

13 MR. JAIN: It will be definitely. We  
14 will have it available to them the first week of  
15 March.

16 MEMBER POWERS: You know, we ought to  
17 make time on the schedule for these guys to come  
18 down and describe that to us, because I think that  
19 it is a great idea.

20 MR. JAIN: I will try to summarize a few  
21 things that it has, and we are not prepared to go  
22 over the details of that at this time.

23 MEMBER POWERS: Well, once we have it  
24 and we have had a chance to look it over and try to  
25 understand the experimental basis here, if you can

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1 come down and give us a little half-an-hour pitch.

2 MR. JAIN: Sure.

3 MEMBER POWERS: So we can say nice  
4 things about you.

5 MEMBER WALLIS: I am more concerned  
6 about the NEI document, because I know that Los  
7 Alamos put a lot of effort into this. They did  
8 experiments and did a lot of analysis, and I just  
9 don't know what NEI is doing about it.

10 MR. JAIN: And finally to add the  
11 comfort level that we have been seeking with this  
12 particular knowledge-based document, it has been  
13 peer-reviewed by an international group of people.

14 MEMBER POWERS: This just gets better,  
15 and better, and better all the time doesn't it?

16 MR. ROSEN: This still don't resolve Dr.  
17 Wallis' concern that all this good work that has  
18 been peer reviewed is being picked up by the NEI  
19 document that will ultimately determine the way that  
20 he licensees do the analysis. How do we get  
21 comfortable with that?

22 I know that I heard Ralph say that the  
23 BWR groups did a very good job, but now I have to go  
24 through the inductive leap of faith that says that  
25 therefore the PWR groups will do a good job, too.

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1 MR. HOLAHAN: I don't think it is a leap  
2 of faith. I think it is our job to do that, and to  
3 make sure that they do a credible job, and making  
4 information available to them seems to me that it  
5 only helps them do that.

6 And perhaps they might actually want to  
7 read this transcript to read the expectations. But  
8 I think that this is a normal part of our job, and  
9 when we come back, we will need to explain either  
10 how the industry has done a good job in meeting our  
11 expectations or what we insist upon to supplement  
12 that.

13 MEMBER WALLIS: In this schedule that is  
14 up on the screen, when do you expect to come back to  
15 us?

16 MR. HOLAHAN: For the purpose of the NEI  
17 guidance?

18 MEMBER WALLIS: For whatever purpose.

19 MR. ARCHITZEL: At this stage, what we  
20 plan now is at the stage where we have evaluated  
21 that guidance, and accept or don't accept it,  
22 shortly thereafter. So it would be probably --  
23 right now it might be November or December of this  
24 year.

25 MEMBER WALLIS: So towards the end of

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1 this year?

2 MR. ARCHITZEL: That is when we are  
3 planning it. It is not specific on the schedule.  
4 It is sort of on my side, but it would be after hat.

5 MEMBER WALLIS: Well, would you have the  
6 responses to the first part of the generic letter,  
7 and you would have the NEI guidance. So you would  
8 have a lot more information, and then you could tell  
9 us whether you were on track, or needed to revise  
10 your strategy, or needed to lean on certain plants,  
11 or --

12 MR. ARCHITZEL: or reissue another  
13 version of the generic letter or something.

14 MR. ROSEN: Now, what happens if they do  
15 their analysis and develop their evaluation methods,  
16 and you read them and don't like them? What  
17 happens?

18 MR. ARCHITZEL: Well, we have one  
19 example of that right now, but we have to make our  
20 case, and we have to -- it is a little difficult to  
21 push, let's say, the leak before break issue, with a  
22 program if it takes most of the risk away.

23 And we do fall into a more difficult  
24 situation with an industry program. If that takes  
25 the majority of the leak -- and if there are still

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1 residual issues there, with latent fiber and things  
2 like that, but that is an example.

3 We have to make a decision, and come  
4 forward, and do battle on that issue.

5 MR. ROSEN: Okay. So a leak before  
6 break is clearly one big issue, but what if you get  
7 past that somehow, and now you know before you do  
8 these kinds of calculations that Dr. Wallis will  
9 help you understand if you don't already, that there  
10 is lots of ways to come up with answers.

11 MR. ARCHITZEL: I guess the best way to  
12 characterize that is if you would see -- we did have  
13 comments that they incorporated on the NEI-02-01,  
14 and they were responsive.

15 And if we have difficulties, your  
16 question is how do we --

17 MR. ROSEN: Well, I am told that if they  
18 have high school issues that they were responsive  
19 on; is that right? We are now into graduate school  
20 in the evaluations of thermal hydraulics.

21 MEMBER WALLIS: Well, I guess that is  
22 looking up in the insulation, and it looked to me  
23 like something that didn't require any engineering  
24 knowledge and was not the difficult part.

25 MR. ROSEN: And what Ralph said was that

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1 they were able to reach an agreement with NEI on  
2 those issues. Now, I am less sanguine about the  
3 ability to reach agreement with the industry on the  
4 more difficult technical issues, and asking what  
5 will you do about it then? Are we going to be stuck  
6 with NEI's guidance?

7 MR. ARCHITZEL: No. No, we are prepared  
8 to not agree with NEI. I mean, there is only one  
9 regulator, and its name is not NEI.

10 MEMBER WALLIS: Right. Put that on the  
11 record.

12 MR. ARCHITZEL: And a typical example is  
13 that if you look at the BWR URG document that I had  
14 mentioned, there is probably 8 or 9 issues where we  
15 wrote our SER and we disagreed with URG.

16 MEMBER WALLIS: Right.

17 MR. ARCHITZEL: When the audit teams  
18 went out and inspected, they verified that the  
19 utilities did it in accordance with our SER, or the  
20 RG plus. So that is the situation. We would have  
21 to supplement if there was that disagreement with  
22 this generic letter, but that would be the process.

23 MEMBER WALLIS: Ralph, we need to finish  
24 by noon, and I think we expected that we might take  
25 less time than we have taken already, but that is

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1 always our expectation perhaps.

2 MR. LEHNING: Well, if there are no more  
3 questions, that was my last slide, and we can move  
4 to BP Jain to talk about the reg guide.

5 MEMBER WALLIS: thank you.

6 MR. JAIN: I am going to be talking  
7 about the reg guide which we are here to seek your  
8 comments for releasing the draft for public comment.

9 MEMBER WALLIS: This reg guide by the  
10 way is in our folder for this meeting.

11 MR. JAIN: In this presentation, I will  
12 describe the process that we used in issuing the  
13 guidance, and the summary of the revision to the reg  
14 guides.

15 We will also talk about our plans and  
16 schedules to each of the reg guides. The process  
17 includes a briefing of the draft guide to ACRS on  
18 what we did the day before yesterday, and finally in  
19 the contents we will issue the draft for public  
20 comments.

21 And we will address all of the public  
22 comments to it and brief the CRGR and ACRS again.  
23 And after observing all the comments, we will issue  
24 a final reg guide.

25 MEMBER WALLIS: Do you have an expected

1 date of arrival of this final guide?

2 MR. JAIN: Well, it is September of  
3 2003.

4 MEMBER WALLIS: So it is pretty soon?

5 MR. JAIN: Right, and we will come back  
6 to you in July to the ACRS. That is what we have  
7 planned. And with respect to this reg guide, we  
8 have basically enhanced the guidance on debris  
9 blockage evaluation for PWR sections, and the  
10 guidance, what we have is consistent with the BWR  
11 guidance, and insights that we have gained from the  
12 research program on 191.

13 And that includes issues such as debris  
14 source and generation that we talked about last  
15 time, and debris transportation, and accumulation  
16 and head loss. Now, the draft guide provides a  
17 unique approach which are acceptable to the staff.  
18 However, the licensee can always propose alternate  
19 approaches for the staff's review. We are also  
20 making available to the --

21 MEMBER APOSTOLAKIS: I gave a talk to  
22 the Northeast Section of the American Nuclear  
23 Society last Tuesday, and I mentioned what you just  
24 said, and those people laughed. Can you tell me why  
25 they laughed?

1 MR. ROSEN: I don't understand the  
2 circumstances of their laughter and so I get the  
3 joke.

4 MEMBER APOSTOLAKIS: I said that the  
5 regulatory guide is an acceptable method to the NRC  
6 and --

7 MR. ROSEN: Oh, that. Now I understand  
8 the question.

9 MEMBER APOSTOLAKIS: And they said about  
10 industry proposing an alternative and they laughed.

11 MR. HOLAHAN: Yes. There is a widely  
12 held view in the industry that it is extremely  
13 difficult to take a path different from the  
14 regulatory guide. I think that there is a certain  
15 truth to that, in the sense that the burden of proof  
16 shifts. If you follow the regulatory guide the  
17 expectation is that whatever you are proposing ought  
18 to be approved.

19 And if you are not following what is on  
20 the regulatory guide, then I think that the burden  
21 of proof is on that individual applicant to show why  
22 everything back to the original research data, and  
23 whatever else we know supports their position.

24 Frankly, I think that the industry is  
25 sometimes too reluctant to deviate from a guide,

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1 because there are obviously -- I mean, the whole  
2 meaning has to do with the fact that every plant is  
3 a little different.

4 And I think that there is room for  
5 deviating from guides, but I think individual  
6 licensees find that that is a path that is not very  
7 appealing for them. It means that not the industry,  
8 but individual utilities, need to become experts on  
9 a whole set of technical issues that otherwise they  
10 don't need to take on.

11 MEMBER WALLIS: Well, Gary, in this case  
12 if the technical solution to the problem turns out  
13 to be remarkably difficult for a licensee, then  
14 there is a real motivation to come up with  
15 alternative approaches.

16 MR. HOLAHAN: Yes, there could be.

17 MEMBER POWERS: But do not underestimate  
18 the value of having a regulatory guide that  
19 articulates what is acceptable to the staff. There  
20 is alternate regulatory structures that lack those  
21 things that become chaotic.

22 And you can come into this country and I  
23 can point to you other government agencies that lack  
24 that particular feature of their regulatory system  
25 and you get chaos.

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1 MR. HOLAHAN: Yes.

2 MEMBER WALLIS: This is where the NEI  
3 guidance is helpful.

4 MEMBER APOSTOLAKIS: Yes, the intent was  
5 never to put down regulatory guides. I mean, I  
6 think that Gary described it very well. There is a  
7 feeling out there that if we should do it that it  
8 takes forever.

9 MEMBER POWERS: Well, it is also true,  
10 because I think that you can look at anybody coming  
11 in under a regulatory guide and you will find  
12 subtleties, plant specifics, where they have taken  
13 deviation and checked the plant, and the staff has  
14 been very good about understanding their positions.

15 MEMBER WALLIS: I can't evaluate our  
16 evidence, George, until I know who was laughing. I  
17 mean, was it graduate students that were laughing,  
18 or was it the --

19 MEMBER APOSTOLAKIS: No, no, industry  
20 people. Graduate students would not dare laugh.  
21 Only when I tell them that it is a joke will they  
22 laugh.

23 MR. ROSEN: George, I can remember some  
24 utility meetings with the staff when the staff was  
25 advocating a position in the reg guide hard to the

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1 utility representatives present, and the utility  
2 managers present said let me read you something from  
3 the front of this reg guide.

4 And then they read the lines that say  
5 that reg guides are not required and additional  
6 alternates to this position can in fact be proposed,  
7 and the staff went along.

8 And as soon as I heard those words, that  
9 we are proposing an alternate to this reg guide,  
10 they said, oh, we understand that. You are not  
11 trying to comply. You are proposing an alternate.  
12 Well, okay, you can do that.

13 MEMBER APOSTOLAKIS: I did not intend my  
14 remark to be commented upon for 10 minutes.

15 MR. ROSEN: I think that is what happens  
16 at the ANS section meetings, and what happens in  
17 real regulatory guides.

18 MEMBER WALLIS: Well, we need to move on  
19 because we do have a deadline here, and we are  
20 almost to the end.

21 MR. JAIN: We are also putting together  
22 a knowledge based document and making it available  
23 to industry and this document pulls together all of  
24 the work done so far in the BWR arena and PWR arena,  
25 international or domestic.

1                   And it is a good source for -- and  
2 including ourselves -- to review individual  
3 licensees on what they have done, and for the  
4 licensee to (inaudible). And I think that is a very  
5 valuable document which has also been peer reviewed  
6 by international investigators, and it is due soon.

7                   MEMBER WALLIS: And you are going to  
8 send copies to the ACRS?

9                   MR. JAIN: Yes. I think they are on the  
10 distribution list, but I will make sure.

11                   MEMBER SHACK: You are going to have a  
12 CD, right?

13                   MEMBER WALLIS: Twelve Cds.

14                   MEMBER POWERS: In contrast to my high  
15 technology friend, I like paper.

16                   MR. JAIN: I will talk about current  
17 plans and schedules. We plan to issue this reg  
18 guide for public comments in February once we hear  
19 from you, and NRR is going to issue a generic letter  
20 in the summer of this year.

21                   We will come back to the ACRS for final  
22 reg guide in July, and reissue it in September.  
23 Hopefully by then the NEI will have their guidance  
24 around the same time.

25                   MR. ROSEN: You say hopefully. If they

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1 don't, then you will issue guidance yourself, right,  
2 to keep the ball moving. We are not just going to  
3 wait for NEI.

4 MEMBER WALLIS: They will have to  
5 respond to the schedule.

6 MR. ARCHITZEL: We are not prepared to  
7 issue guidance at that time if they have not issued  
8 it. We have the guidance in the reg guide, but we  
9 are not going to turn around --

10 MR. ROSEN: Well, what happens if NEI  
11 fails to open in the fall of 2003 and they are just  
12 not ready, and they have internal problems, or  
13 whatever, and there is nothing forthcoming?

14 MR. HOLAHAN: It seems to me that  
15 depends on whether they are going to be a month  
16 late, or they dropped out completely on the issue.  
17 I think we are going to have to deal with it when we  
18 see the circumstances.

19 If we think that there is a useful  
20 product, and we are a little bit more patient, then  
21 we might decide to accommodate that. If we see this  
22 as no longer a likely success path, then I think we  
23 are in a position of having to issue our own  
24 guidance. I don't see another choice.

25 MEMBER LEITCH: And this is John

1 Lehning. We are meeting with NEI regularly and  
2 getting updates on their status, and so if we feel  
3 down the road that we have indications that they  
4 will not meet it, we will have more information to  
5 make a decision.

6 MR. ROSEN: When you say updates on the  
7 status, do they just give you a schedule and say  
8 here is where we are, or are they giving you a  
9 draft?

10 MEMBER LEITCH: No, they have given us a  
11 draft like the ground rules that you got, and we  
12 have gotten that, and as they have gotten more  
13 detail guidance, we will get that information, and  
14 we will be able to see how far they are coming along  
15 and evaluate it.

16 MR. ROSEN: Well, what if the ACRS said  
17 we would like to see this issue resolved  
18 expeditiously, and I would be uncomfortable, and not  
19 speaking for the ACRS, but speaking for myself, and  
20 I would be uncomfortable if it came to the fall of  
21 2003 and NEI had a longer or much longer schedule  
22 than that, and the staff was not ready to go along  
23 with it.

24 MR. ARCHITZEL: Let me just be fair to  
25 NEI. When this issue was agreed to and this

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1 approach was agreed to in March, the first time that  
2 we had the meeting, in September of 2003 was the  
3 date of the guidelines, and it has not changed since  
4 then. So they have not slipped on that guideline  
5 since we agreed to this program.

6 MR. ROSEN: The staff is confident that  
7 they will continue to stay on schedule and I am  
8 happy.

9 MR. ARCHITZEL: We have not heard of a  
10 slip. Maybe a month or two like Gary said is  
11 possible, but they have not told us of one yet.

12 MR. HOLAHAN: Nothing that we have said  
13 could encourage them not to meet September 30th.

14 MEMBER WALLIS: Yes. I think that the  
15 one concern that the subcommittee had was the chaos  
16 phenomenon that Dr. Powers referred to; is that if  
17 you don't have proper guidelines for this, which is  
18 a difficult problem, you may get a whole host of  
19 different approaches from different utilities, and  
20 then there is going to be a difficulty in evaluating  
21 all of those different methods.

22 And the last thing that ACRS wants to do  
23 is to have to be in the loop to evaluate all of  
24 those different methods.

25 But that is good enough. This letter

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1 and the issuing of the letter and the regulatory  
2 guide for public comment is an essential step to get  
3 the ball rolling, and that is the real key thing.  
4 That is really what we are here for today. Any  
5 comments from my colleagues or questions?

6 MEMBER POWERS: Well, I would just  
7 comment that it is true that the resolution of this  
8 issue has been a slow process, but I have to say  
9 that I am very enthused about the approach that has  
10 been taken here on the BWR, where I think the staff  
11 has done a responsible job in assuring itself that  
12 there is a technical issue here.

13 And enough to say, gee, we can't go any  
14 further without having plant specific information  
15 and then turning the ball over to those that have  
16 the problem at the plants.

17 And I think that this really is kind of  
18 an example piece of how to attack these touch  
19 technical issues that come up every once in a while  
20 for the existing plants, and I think they have done  
21 -- I mean, I like the style.

22 I like your style on this, and this  
23 summarization that you are planning with all of your  
24 work in a trackable document, I hope that you do a  
25 good job on that, because I think that is a real

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1 contribution to inform the licensees and those that  
2 have concerns about your licensees. And doing a  
3 good job on that will serve your style even better.

4 MEMBER WALLIS: Dr. Powers, I just  
5 wanted to make clear that you said that you said  
6 that BWR and I think you meant to say PWR.

7 MEMBER POWERS: PWR, yes. I think I did  
8 a pretty good job on the BWR, too.

9 MEMBER WALLIS: But your comments were  
10 about the PWR and the record ought to show that.  
11 Any other comments or questions before we wrap up?

12 MEMBER LEITCH: I guess my concern is  
13 just with the speed with which this was done, or the  
14 lack of speed, and I just wonder. We can't go back  
15 and do anything about the time that has passed, but  
16 I wonder if you do any kind of a self-assessment?

17 Is there a different strategy we could  
18 have taken on this issue from the get go that would  
19 have led to a quicker resolution, or are we just  
20 tied up by the regulatory process in such a way that  
21 this is the best that we could have done?

22 Do you get a chance to -- in other  
23 words, my impression is that from crude inspection,  
24 it would become real obvious that there is probably  
25 6, 8, or 10 plants that have a real serious problem

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1 with this, and we have been sitting here for 7 years  
2 and two more to go before it gets fixed.

3 Is there no way that we could have  
4 required improvements at those plants that had a  
5 real obvious problem prior to doing all this  
6 research work, which I admit is admirable, but it is  
7 time consuming, and we are thinking about plants  
8 where perhaps this is a serious problem, and one-  
9 quarter of the life of the plant has gone by while  
10 we have been wrestling with this issue.

11 I mean, is there a better and more  
12 expeditious way that we could have dealt with this  
13 problem at the get go?

14 MR. HOLAHAN: I guess I feel responsible  
15 for getting these things done, and it seems to me  
16 that the process that we used -- that is, you know,  
17 generating scientific data and saying that we really  
18 have a basis for understanding that there is an  
19 issue, I wouldn't want to skip those parts in order  
20 to expedite the process.

21 When I look at this, and when I look at  
22 other generic issues that we still have on our  
23 plate, and I ask myself are we doing these things as  
24 well as we could and as quickly as we could, I think  
25 there is room for improvement.

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1           There is room for acceleration, but I  
2 wouldn't want to change the process. I think we  
3 have touched the right basis. If anything, I think  
4 we need to just be more dedicated to getting the  
5 work that needs to be done as quickly as possible.

6           There are technical steps and there are  
7 process steps, and there is the ACRS and the CRGR,  
8 and there is public comment, and all of those are  
9 valuable things that I wouldn't want to lose.

10           I think the challenge for those of us  
11 who are managing this program is to find the  
12 resources and the people who can do those right  
13 steps as quickly as possible.

14           And it is kind of hard to argue in this  
15 case whether it couldn't have been done any faster.  
16 Probably it could, and we just need to continue to  
17 look at that.

18           MEMBER WALLIS: Anything else? Then  
19 thank you very much for your presentation, and I  
20 will hand this back to the Chairman.

21           CHAIRMAN BONACA: Thank you. Before we  
22 break or take a recess for lunch, I would just like  
23 to thank you. This meeting is done.

24           (Whereupon, a luncheon recess was taken  
25 at 11:57 a.m.)

1 CHAIRMAN BONACA: We are back in  
2 session, and we have now a presentation on the PTS  
3 and evaluation project, technical basis for  
4 potential revision to PTS clinical materials, and  
5 Dr. Kress will take us through that presentation.

6 MEMBER KRESS: No, Dr. Shack will.

7 CHAIRMAN BONACA: Dr. Shack. Okay. I  
8 guess your initials have been changed.

9 MEMBER SHACK: They have been changed,  
10 right. We had a presentation to the subcommittee on  
11 --

12 MEMBER WALLIS: Are these your  
13 regulatory initials, or your real initials?

14 MEMBER SHACK: Add 60 degrees to --

15 CHAIRMAN BONACA: Well, that is the  
16 reason for the change. Okay.

17 MEMBER SHACK: We had a subcommittee  
18 meeting where we went over this in some detail, and  
19 the staff will now have the difficult task of  
20 distilling a days worth of discussion down to their  
21 allotted time, whatever that is. Nathan, are you  
22 going to lead off, or Mark?

23 MR. CUNNINGHAM: Good afternoon. Mark  
24 Cunningham from the Office of Research, and Ed  
25 Hackett and Nathan Sunil from the Office as well

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1 here, as well as Alan Kolaczkowski, and David  
2 Bessette will be making the presentation in some  
3 sort of fashion this afternoon.

4 First off, Mark Kirk was here yesterday  
5 making a lot of the presentations, and something  
6 came up today and he couldn't be here, and so Ed is  
7 -- just think of Ed as Mark today.

8 MEMBER KRESS: Is that his regulatory  
9 name, or is that --

10 MEMBER SHACK: And will he mess up the  
11 power point?

12 MR. HACKETT: We have already done that.  
13 We have already taken care of that one.

14 MR. CUNNINGHAM: Just by way of a short  
15 introduction --

16 MEMBER WALLIS: This sounds a little bit  
17 since he couldn't be here like the Politburo, where  
18 one of our members isn't here today, and you wonder  
19 what has happened.

20 MR. CUNNINGHAM: After the savage  
21 beating that Mike Mayfield administered --

22 MEMBER ROSEN: They beamed him up.

23 MR. CUNNINGHAM: Something like that.

24 Not quite though. By way of introduction the  
25 committee has been involved with listening to us and

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1 talking with us over several years now on the PTS  
2 work that we have had underway.

3 We are kind of in an transition period  
4 right now, where we are moving from a state of  
5 having a technical basis for possible rule changes,  
6 and making a transition into considerations by our  
7 colleagues at NRR about real rule changes.

8 What you will hear today is kind of a  
9 summary of where we are with respect to the  
10 technical basis. You have been provided a document  
11 or two and those are summaries of where we are so  
12 far. So you are getting in a sense a summary of a  
13 summary today.

14 Again, the big point is that we are in a  
15 transition, and NRR will be coming back, I'm sure,  
16 and have lots of opportunities to talk to you or  
17 with you as well about the proposed rule as they get  
18 into that.

19 We will be back with them to help them  
20 discuss technical issues associated with it, and so  
21 --

22 MEMBER APOSTOLAKIS: Is there a request  
23 for a letter today?

24 MR. HACKETT: There is a request.

25 Thanks, Mark.

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1 MR. CUNNINGHAM: Go ahead. Mark will  
2 continue from here.

3 MR. HACKETT: A couple of other items  
4 here. There are also with us Roy Woods, and Roy, if  
5 you want to raise your hand; and Donnie Whitehead is  
6 over on the wall there, too. Matt Mitchell,  
7 representing NRR, in the back, and so if there are  
8 any hard questions on the regulatory aspects, we  
9 will go to Matt.

10 And Terry Dickson is here also from the  
11 Oak Ridge National Laboratory. And James Chang  
12 from Maryland is here, too. Sorry about that. Mark  
13 emphasized the fact that this is not our final  
14 product, and I think that is where we didn't quite  
15 lead off the day real well yesterday.

16 So this will not be the committee's  
17 final crack at this. There is quite a road ahead of  
18 us ultimately.

19 MEMBER APOSTOLAKIS: It this is not the  
20 final product, then what kind of letter are we  
21 supposed to write?

22 MR. HACKETT: Where we are, and I will  
23 try and set the stage for that, as Mark indicated,  
24 what we have right now is a draft technical basis  
25 that the team here feels supports a revision to the

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1 PTS rule. But it is exactly that.

2 It is a draft and there is some more  
3 work to be done. We took some very good comments  
4 yesterday on the report itself and the structure,  
5 and the content, and some things that we need to  
6 address there.

7 So really what we are looking for from  
8 the committee at this point is a thumbs up that the  
9 committee feels that they are on the same page, and  
10 that this is something that at least merits going  
11 ahead and considering rule making at some point.

12 And that is not to say that that is even  
13 going to get engaged this year or even next. I  
14 mean, that is a decision for NRR, and we are here  
15 just to discuss the technical basis. That said, I  
16 guess I will go to the next slide if I can do that  
17 without Mark.

18 I think I basically already said most of  
19 what is on here. We did spend a full day yesterday,  
20 where we went through a lot of this in detail, and  
21 we can go through as much or as little of that as  
22 the committee needs hopefully, but we do have  
23 obviously reduced time.

24 We have only about a 16 or 17 slide  
25 presentation today, compared to probably about 50 or

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1 60 yesterday. And we plan on going through all the  
2 things that you see here.

3 MEMBER WALLIS: You said 50 or 60?  
4 There was 150.

5 MR. HACKETT: That was Mark's  
6 presentation, that's right. And unfortunately Mark  
7 could not be with us today as Mark Cunningham  
8 pointed out, and that is certainly a deficiency for  
9 us in several respects.

10 And also most notably with respect to  
11 power point, and I don't think that any of us here  
12 at the table is equivalent in that regard. With  
13 regard to the rule, and maybe this is one that I  
14 could stand up for if you guys can still hear me,  
15 the basis was documented for the rule a long time  
16 ago now, in 1982 SECY-82-465.

17 What you are really looking at is a  
18 methodology construct to protect the reactor vessel  
19 in the event of an over cooling event, and it really  
20 boils down to as simple as two things; having a  
21 materials metric, which is here on the X-axis, and  
22 which was the subject of much debate yesterday in  
23 the way of RTNDTs, versus a screening criterion, or  
24 rather an acceptability when run through a wall  
25 cracking.

1                   When that was all put together,  
2                   basically you ended up with a criterion,  
3                   acceptability criterion for through wall cracking  
4                   frequency 5 times 10 to the 6th, minus 6.

5                   And then a metric and RTNDT space at  
6                   either 270 or 300, depending on the exact material  
7                   consideration that you were looking at. And that  
8                   just sets the construct for 10 CFR 50.61, which is  
9                   the upper bullet that you see there.

10                  If necessary, people could employ flux  
11                  reduction measures to keep the flux down, and keep  
12                  the embrittlement down for the plant in particular  
13                  for the future.

14                  And then if necessary perform plant  
15                  specific analyses for Reg Guide 1.154 to justify  
16                  continued operation if that particular trip wire was  
17                  launched, and that happened --

18                  MEMBER WALLIS: Wait a minute now. Is  
19                  this your old basis?

20                  MR. HACKETT: This is the old basis.  
21                  All I was doing here was just revisiting what is  
22                  currently today.

23                  MEMBER WALLIS: So this is the current  
24                  basis?

25                  MEMBER APOSTOLAKIS: Yes. So it is 210

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1 from there, plus 60.

2 MR. HACKETT: That was the fix that we  
3 put on, and the other part that we covered  
4 yesterday, and I know that Professor Apostolakis  
5 wasn't here. We did receive some feedback from Dr.  
6 Shack and Dr. Wallis about the incorrectness of  
7 this, and the way that it is shown in your draft  
8 report is not correct.

9 It was really keyed to 210, and the  
10 margins were -- I don't know if we want to get into  
11 all of that.

12 MEMBER APOSTOLAKIS: Now, wait a minute.  
13 Wait a minute. The current screening criteria is  
14 270?

15 MR. HACKETT: That's correct.

16 MEMBER APOSTOLAKIS: This is consistent  
17 with that?

18 MR. HACKETT: Yes, it is.

19 MEMBER APOSTOLAKIS: So it is wrong.

20 MR. HACKETT: I am trying to think of  
21 the  
22 right --

23 MEMBER APOSTOLAKIS: It is not the  
24 figure that is wrong. It is the criterion that is  
25 wrong, because if you move to the right, you are

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1 increasing the frequency.

2 MEMBER SHACK: The number that they  
3 report, the 270, is this number to which they have  
4 sort of been told to add 60 degrees. So they  
5 correspond. The 210 is sort of the real  
6 embrittlement, and the 270 is the regulatory  
7 embrittlement.

8 MEMBER APOSTOLAKIS: But I don't  
9 understand that. Why do you add 60 degrees?

10 MEMBER SHACK: Because the reg guide  
11 tells you to do that.

12 MEMBER KRESS: Because that is more  
13 conservative when it comes down to trying to decide  
14 --

15 MEMBER APOSTOLAKIS: Well, that is what  
16 I am saying, these are more conservative.

17 MEMBER APOSTOLAKIS: Well, you move to  
18 the right and so you go up and the frequency is now  
19 less and the failure is higher, right?

20 MEMBER SHACK: The average value of an  
21 RTNDT is still 210. Whether the number that they  
22 report, because of the way that they are told to  
23 compute it, corresponds to an average of 210.

24 They report the average, plus the 60  
25 degrees, the 270, but they are equivalent in terms

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1 of this plot.

2 MEMBER APOSTOLAKIS: This screening  
3 criterion is 270?

4 MEMBER SHACK: Yes.

5 MEMBER APOSTOLAKIS: So 60 degrees have  
6 been added to this number here from the curve to  
7 produce a screening --

8 MEMBER SHACK: No, to get this number  
9 from the reported number, you subject 60 degrees.

10 MR. HACKETT: Right.

11 MEMBER SHACK: The reported number  
12 computed according to Reg Guide 199, Rev. 2.

13 MEMBER APOSTOLAKIS: Okay. So the  
14 utility calculates

15 MEMBER SHACK: 270, and that really  
16 corresponds to 210 on this plot.

17 MEMBER WALLIS: Why does it really  
18 correspond?

19 MEMBER APOSTOLAKIS: I don't understand  
20 that. How does it do that?

21 MR. HACKETT: There is probably no  
22 better way to explain that than the way that Bill  
23 just did.

24 MEMBER APOSTOLAKIS: When you develop  
25 screening criteria don't you try to be conservative?

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1 MR. HACKETT: Absolutely.

2 MEMBER APOSTOLAKIS: Right. And so here  
3 the conservative thing to do would be to say 210  
4 from the curve, minus 60.

5 MEMBER SHACK: No, the 210 is  
6 conservative here because of all of the  
7 conservatisms in the analysis. In 1982, and I am  
8 not sure that I can reconstruct the argument, but I  
9 would guess that they said, Jesus, we did all sorts  
10 of conservative things to get to this 210, and we  
11 are not going to then add 60 more degrees of margin  
12 to cover it.

13 Everything else that we did to get to  
14 the 210 number was already conservative.

15 MEMBER WALLIS: So what is the 210 now?  
16 I mean --

17 MEMBER SHACK: Because for other  
18 reasons, you report a number from Reg Guide 1.99,  
19 Rev. 2, that is told to compute it. So you don't  
20 want to have two numbers around it.

21 MEMBER WALLIS: Well, why not --

22 MEMBER APOSTOLAKIS: What does a utility  
23 do?

24 MR. HACKETT: They do just what Bill  
25 said. They do the regulatory thing, which is --

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1 MEMBER APOSTOLAKIS: They follow the  
2 regulatory guide ?

3 MR. HACKETT: They follow 1.99, and they  
4 compare it to the 270.

5 MEMBER APOSTOLAKIS: So the number is  
6 280 that they calculate?

7 MEMBER SHACK: Let's not.

8 MEMBER APOSTOLAKIS: Let's say it is,  
9 and then what happens?

10 MR. HACKETT: Well, then actually you  
11 would have gone to that second bullet well before  
12 then, and if necessary, you would have gone down  
13 here.

14 MEMBER APOSTOLAKIS: But wouldn't it be  
15 more logical to say that you calculate your number  
16 to 80, and then subtract 60? Wouldn't that be the  
17 logical thing to do?

18 MR. HACKETT: You could say it that way,  
19 too.

20 MEMBER WALLIS: So why didn't you do  
21 that?

22 MEMBER APOSTOLAKIS: So under 60  
23 degrees, the subjective estimate is -- well, I am  
24 trying to give you a way out.

25 MEMBER WALLIS: There is no way out.

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1 MEMBER APOSTOLAKIS: There is no easy  
2 way out, but our judgment is that this low curve is  
3 too conservative, and so the screening criterion is  
4 moving up.

5 MEMBER KRESS: You guys are arguing  
6 about (inaudible) and the Rule is in the new one.

7 MR. HACKETT: That is what we are  
8 hoping.

9 MEMBER APOSTOLAKIS: It is important to  
10 understand where the --

11 MEMBER SHACK: The important thing to  
12 understand is that the current is not  
13 unconservative.

14 MR. HACKETT: It is actually very  
15 conservative, at least that is what we think.  
16 Anyway, maybe we will see if we --

17 MEMBER WALLIS: You are sort of lucky  
18 that by you understanding it in terms of that it is  
19 very conservative. If you try to argue with George  
20 on the basis of this figure, you will probably be in  
21 deep water for a long time.

22 MEMBER APOSTOLAKIS: Well, tell me why  
23 not? I mean, we need to learn.

24 MEMBER SHACK: Because they have always  
25 used -- if you computed the number the way they

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1       computed this number, they have always used 210.  
2       The number that they happen to report is computed  
3       slightly differently, but it is equivalent to the  
4       210 number.

5                   MR. HACKETT: I think that Matt Mitchell  
6       is here from the NRR, and Matt has got some  
7       comments.

8                   MR. MITCHELL: Yes, I am Matt Mitchell,  
9       from NRR, and we are the folks that are responsible  
10      for this on the NRR side of the house. I will try  
11      to sort of repeat Bill's explanation as to how this  
12      figure fits together with what is in 50.61.

13                   There could be a limit in 50.61 that  
14      says or would set a screening criteria of 210  
15      degrees based Upon this nominal mean RTNDT value.  
16      What has been done, and what was done in  
17      SECY.82.465.

18                   To the best of my understanding is that  
19      there were 60 degrees added to the 210 value, and in  
20      recognition of uncertainties which were involved in  
21      the probablistic calculations which were used to  
22      develop the screening criteria.

23                   And that same 60 degrees in effect was  
24      added to the other side of the equation when a  
25      licensee calculates the RTPTS value. If you were

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1 comparing to 210 and you looked at Reg. Guide 1.99  
2 methodology, you would take the initial RTNDT value  
3 and you would add the shift.

4 And you would stop at that point. To  
5 compare to 270, you would take the methodology which  
6 is the initial property, the shift, plus the margin  
7 turn from Reg Guide 1.99 Rev. 2.

8 So what in effect has been done is that  
9 60 degrees has been added to each side of the  
10 equation. I agree completely that it is confusing  
11 and is not clear. But if you look at it as sort of  
12 a balancing of the scales, you have essentially put  
13 60 degrees on both sides.

14 MEMBER APOSTOLAKIS: So you need at  
15 least 210.

16 MEMBER WALLIS: No.

17 MEMBER KRESS: If you use this mean --

18 MR. MITCHELL: The number is 270 in  
19 regulation.

20 MEMBER APOSTOLAKIS: Sure, but that has  
21 already been --

22 MR. SIU: And it is related to a mean of  
23 210.

24 MEMBER SHACK: The criterion it  
25 consistent with this graph.

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