

1           BEFORE THE UNITED STATES  
2           NUCLEAR REGULATORY COMMISSION

3   IN RE: THE MATTER           )  
4           OF                    )  
5   DAVIS-BESSE                )

6                               ~~REPORT OF PROCEEDINGS~~ PUBLIC MEETING  
7                               May 7, 2003  
8                               1:00 P.M.

9           REPORT OF PROCEEDINGS ~~had and testimony~~

10 ~~taken the hearing~~ of the above-entitled matter,  
11 ~~held before Ms. Christine Lipa~~, at the Nuclear  
12 Regulatory Commission, 801 Warrenville Road,  
13 Lisle, Illinois.

14

15   PRESENT ON BEHALF OF N.R.C.:

16       MS. CHRISTINE LIPA, ~~Hearing Officer~~ Branch Chief;

17       MR. MARTIN J. FARBER;

18       MR. RON GARDNER;

19       MR. DAVE HILLS;

20       MS. CINDY PEDERSON;

21       MR. JACK GROBE; and

22       MR. DAVE PASSEHL

COUNTY COURT REPORTERS, INC.  
600 S. County Farm Rd., Wheaton, IL  
630-653-1622

1     PRESENT ON BEHALF OF DAVIS-BESSE:

2         MR. GARY LEIDICK;

3         MR. JIM POWERS;

4         MR. ROBERT SCHRAUDER;

5         MR. KENDALL BYRD;

6         MR. BOB COWARD;

7         MR. KEVIN SPENCER;

8         MR. STEVE FRANTZ; and

9         MR. PAT ~~MC CLOSKEY~~ MC CLOSKEY;

10    PRESENT AT HEADQUARTERS: NRC

11         MR. TONY MENDIOLA;

12         MR. JON HOPKINS;

13         BILL RULAND; and

14         MR. HO NEIH.

15    ALSO PRESENT:

16         MR. JOE DRAGO;

17         MR. DAN SALTER;

18         MR. BRIAN RENWICK;

19         MR. DENNIS DEMOSS; and

20         MR. TODD SCHNEIDER.

21    ALSO PRESENT AT HEADQUARTERS;

22         MR. DANIEL HORNER.

1 MS. LIPA: Good afternoon and welcome to  
2 First Energy and members of the public. I'm  
3 Christine Lipa, and I'm a branch chief here in  
4 Region III for the NRC, and I am responsible for  
5 the NRC inspection program at Davis-Besse. I'm a  
6 member of the Davis-Besse oversight panel, and we  
7 will go through the rest of the introductions over  
8 here on our side.

9 Next to me is Dave Passehl, he is a  
10 project engineer. And behind Dave is ~~Monty~~ Monte  
11 Phillips, he's also a project engineer ~~and~~ in DRP.  
12 Following down is Jack Grobe, he's senior manager  
13 here in Region III. He's also chairman of the  
14 Davis-Besse oversight panel.

15 Next to Jack is Cindy Pederson,  
16 she's the director of the division of reactor  
17 safety. Next to Cindy is Dave Hills, he's the  
18 chief of the mechanical engineering branch. Next  
19 to Dave is Rob Gardner, he's the chief of the  
20 electrical engineering branch. And next to Ron is  
21 Marty Farber, he's the lead inspector for the  
22 system health area.

1           We also have panel members video  
2 conferencing, and if you guys from headquarters  
3 want to go ahead and make introductions from that  
4 end, that would be appreciated.

5     MR. HOPKINS: This is Jon Hopkins, NRR  
6 project manager.

7     MR. MENDIOLA: Tony Mendiola, NRR section  
8 chief.

9     MR. BLUM: Steve Blum, region coordinator in  
10 the executive director's office. I'm not part of  
11 the panel.

12    MR. HORNER: Dan Horner, McGraw-Hill  
13 Publications.

14    MR. NIEH: Ho Neih.

15    MS. LIPA: And then in here we have a  
16 transcriber, Ellen Piccony.

17           Do we have any representatives or  
18 public officials in the room?

19           (No response.)

20    MS. LIPA: I didn't see any. Okay, great.  
21 The purpose of today's meeting is to discuss First  
22 Energy's plans to address and resolve a number of

1 engineering design issues, and this is a follow-up  
2 to our December 23rd meeting that we held in here  
3 on design issues.

4           We have actually been discussing  
5 several of the specific issues at our monthly  
6 public meetings, and we thought it would be best  
7 to have another meeting focusing just on this  
8 topic, so that we could get into some more detail.  
9 And some of these issues have already been  
10 reported in LERs and analyzed, and others are  
11 still being analyzed.

12           We have several special inspections  
13 that will review this area in detail, including  
14 the system health inspection the corrective action  
15 team in connection with the resident inspection.

16           Today's meeting is open to the  
17 public, and the public will have an opportunity  
18 before the end of the meeting to ask questions of  
19 the N.R.C. This is considered a Category I  
20 meeting in accordance with the N.R.C.'s policy on  
21 conducting public meetings.

22           Before the meeting is adjourned,

1 there will be opportunities for members of the  
2 public to ask questions and make comments. We are  
3 also having the meeting transcribed to maintain a  
4 record of the meeting. The transcription will be  
5 available on our Web page several weeks after  
6 today's meeting.

7           It's important that all speakers  
8 today use the microphones and be sensitive to the  
9 fact that we have people video conferencing with  
10 headquarters, and also people listening in from  
11 telephone lines on the bridge, and also so the  
12 transcriber can hear what everybody is saying.

13           There were handouts available in  
14 the foyer, including the licensee's presentation,  
15 and verifying that the licensee's presentation is  
16 already on the N.R.C./Davis-Besse Web page this  
17 morning. We also have copies of our monthly  
18 newsletter in the foyer, or out on the table, and  
19 feedback forms that you can use to fill out and  
20 provide feedback on the content and format of the  
21 meeting.

22           We do plan to go for the business

1 portion of the meeting today until about 4:30, and  
2 then we will take a break and open up the  
3 microphone for members of the public in here and  
4 on the phone lines and at headquarters to ask  
5 questions of the N.R.C.

6           So that's all I have for opening  
7 remarks. I'd like to turn it over to you, Gary.

8     MR. LEIDICK: Good afternoon, my name is  
9 Gary Leidick, executive vice-president of First  
10 Energy Nuclear Operating Company. Let me just  
11 introduce the individuals from our side. To my  
12 immediate right is Bob Schrauder, director of  
13 nuclear support services. To his right is Jim  
14 Powers, director of nuclear engineering. To the  
15 far right is Kevin Spencer from our licensing  
16 organization.

17           To my immediate left is Ken Byrd,  
18 supervisor of analysis in the nuclear engineering  
19 department at Davis-Besse. And Bob Coward, who  
20 is with MPR.

21           We appreciate the opportunity to  
22 give you an update on our design issues for

1 Davis-Besse, and I think we can move right through  
2 the slides here, really, to Slide 4 if you would.  
3 I just want to give a background to set the stage  
4 for today's meeting. I think most of us are aware  
5 of this, but it's good to refresh ~~where~~ why we are  
6 here. We did develop the building block last  
7 summer for the Davis-Besse recovery, and in  
8 several of those building blocks, particularly the  
9 system health assurance, program compliance and  
10 containment health, a variety of questions came  
11 out of those reviews relevant to the design of the  
12 plant and design documentation for the plant.

13           In December we decided to perform  
14 additional reviews, including our safety function  
15 validation project. As Christine indicated, we  
16 presented the outline of that project in late  
17 December.

18           This has really involved an  
19 extensive effort in terms of calculation reviews,  
20 detailed design reviews, revalidating design  
21 inputs, and finally the safety function validation  
22 project. So really where we are today is to



1 present results and conclusions of these reviews,  
2 and to discuss the few remaining issues that we do  
3 have as a result of those views and the resolution  
4 plans for those remaining issues.

5           In terms of our desired outcome, we  
6 believe we are in a position to demonstrate to the  
7 regulators and public that we have provided  
8 reasonable assurance that the systems at  
9 Davis-Besse can perform their safety and accident  
10 mitigation functions. And, again, that is our  
11 purpose here today is to walk through that  
12 process.

13           Finally, in terms of introduction,  
14 on Slide 6, this is just a reminder of our return  
15 to service plan buildings blocks that we did  
16 create last summer. And as I indicated earlier,  
17 many of these building blocks produce design  
18 questions, so we have taken that set of questions,  
19 if you will, in earnest and developed a program to  
20 address those questions and the extent of  
21 condition of the ramifications of those questions.

22           So what I'd like to do is turn the

1 program over to Bob Schrauder. He will talk about  
2 the design reviews, and Jim Powers will present  
3 the remaining issues that we have as a result of  
4 those reviews.

5 MR. SCHRAUDER: Thank you, Gary.

6 Over the several meetings in the  
7 past, we have described for you our process for  
8 going through and answering the questions and the  
9 design reviews that we would do. We outlined the  
10 three-prong approach for that, where each  
11 individual condition report question would be put  
12 through our corrective action program. We then  
13 had a couple of collective reviews.

14 We did the safety function  
15 validation project and the latent issues reviews,  
16 which were deeper-cut reviews of systems, and then  
17 we also did a set of topical area reviews, and we  
18 will touch on the results of each of those during  
19 the course of the discussion.

20 We periodically at the public  
21 meetings updated you on our progress and the types  
22 of findings that we were -- that came out of those

1 specific reviews. Now, over the last several  
2 months we have expended significant resources to  
3 answer the questions that had been raised through  
4 those specific reviews. And today, as Gary said,  
5 we want to discuss with you where we're at with  
6 those reviews, what remains to be looked at and  
7 what they have, in the aggregate, shown us.

8         Now, I had not planned on going  
9 into a great amount of detail of how we resolved  
10 each individual question that was raised in those  
11 reviews. Now, we can and will take any specific  
12 questions that you might have, you know, on any  
13 specific question that was raised during the  
14 process. What we want to do is kind of, here is  
15 what we found, and here is what we have left to do  
16 to resolve these things. And, again, what that  
17 has led us to in our conclusions.

18         As you might recall, we discussed  
19 in the past we had found 1,200 of these questions  
20 centering around the design of the plant. We took  
21 a graph to see if they would have responded as  
22 expected. To a large extent those questions have

1 now been answered, and but for the few remaining  
2 items that we are going to discuss with you today,  
3 we have confirmed the adequacy of the design basis  
4 and the support systems, and that they would have  
5 performed to meet their intended function.

6           That is not to say that we did not  
7 find errors along the way, in some cases incorrect  
8 assumptions in some of the design calculations.  
9 There were errors in some of them, but what we did  
10 find in nearly all the cases is that there was  
11 enough conservatism built into the calculation  
12 and/or enough robustness, if you will, in the  
13 equipment itself, that even with those errors, we  
14 were able to demonstrate the systems' capability  
15 to perform their independent functions.

16           The next slide shows, going -- I'm  
17 sorry, we were already on the slide I wanted. The  
18 design reviews, the purpose was to provide  
19 assurance that the safety functions of those  
20 systems which have a significant contribution to  
21 the core damage frequency and the larger early  
22 release frequency, and what we meant by

1 significant was greater than 99 percent, would  
2 perform their safety and accident mitigation  
3 functions. And, again, those two detailed reviews  
4 that we did in that regard were a combination of  
5 the latent issues reviews and the safety function  
6 validation project.

7       The next slide, this shows which  
8 reviews were done under which category. And what  
9 really spawned the latent or the safety function  
10 validation project was we had initially scoped  
11 these five systems under the latent issue reviews,  
12 which did a very deep cut into the system, and, in  
13 fact, most of those systems had enough questions  
14 raised on them that we wound up conservatively  
15 declaring them inoperable at the time, so that  
16 raised the question of what does that mean for the  
17 rest of your systems.

18       We did find that the great -- the  
19 vast majority of the questions that were raised  
20 were centered around the calculational support of  
21 the design basis. And that's what then spawned  
22 the safety function validation project, which

1 added -- in that process we identified those  
2 systems or those functions that contributed to 99  
3 percent of the core damage frequency again, and  
4 then identified which systems contained those  
5 functions, and we came up with a list of 15  
6 systems. Five of those systems we had already  
7 performed in the latent issue reviews, and then we  
8 did the additional ten systems under the safety  
9 function validation project.

10 I don't have it listed up here, but  
11 as we completed the safety function validation  
12 project, we also later added the station blackout  
13 diesel on this also, which is an -- it is an  
14 important system for us.

15 MS. LIPA: I have a question for you, Bob,  
16 before you go on. Initially you declared those  
17 systems inoperable, but have you concluded now  
18 that they were or were not, or are you going to  
19 get into it?

20 MR. SCHRAUDER: I'm going to get into it,  
21 but my sense is that if we had all the final  
22 answers on the latent issue reviews, we had

1 answered the questions, got to the bottom of it.  
2 We may not have gone through the safety function  
3 validation project, that is the bottom line I'm  
4 going to get to, is that these systems will be  
5 found to have been inoperable, other than the  
6 coolant system, and as we know, that had pressure  
7 boundary leakage and that was tech spec  
8 inoperable. You are allowed zero pressure  
9 boundary leakage.

10           So the other systems, we had a  
11 couple of questions on some of the systems yet,  
12 but we have enough preliminary results in on those  
13 that calculations are not finalized and in our  
14 calculation base yet, but we believe that we will  
15 find that these -- four of these systems were  
16 operable, and that the in RCS some have performed  
17 the intended function but for the RCS boundary  
18 leakage.

19    MS. LIPA: Thank you.

20    MR. GROBE: Let me make sure I understand  
21 that. With respect to the emergency diesel  
22 generators didn't you have to add substantial

1 cooling capacity for that room, and didn't that

2 affect operability of the diesel generators?

3 MR. SCHRAUDER: Jack, you are correct, we

4 had a question on the operability, and it was

5 really the components in the diesel room itself,

6 as a result of higher temperature, we are in the

7 final stages of the analysis on that. We believe

8 that the analysis, even at elevated temperature,

9 is going to support operability. We were in --

10 we're getting a little ahead, but we are

11 considering additional ventilation and margin into

12 that room, but we have looked at the components in

13 the room at the new elevated temperature, and the

14 analysis is going to demonstrate that it was, in

15 fact, operable.

16 MR. GROBE: Okay.

17 MR. SCHRAUDER: The next slide shows the set

18 of systems that we are completed with and have

19 demonstrated the safety functions have been

20 confirmed on these systems. That is the main

21 steam system, service water system, safety

22 features actuation system, steam generators and



1 the reactant coolant system. And obviously I want  
2 to make the caveat again, whereas I believe the  
3 reactant coolant system would have performed the  
4 system, it was tech spec inoperable as a result of  
5 pressure boundary leakage.

6           Then each of the remaining systems  
7 I'm going to go through one by one and identify  
8 where we're at with that system and what we expect  
9 to be the final answer on it.

10           The first one is the steam and  
11 feedwater rupture control system. This system we  
12 will conclude it was tech spec inoperable, and  
13 that is as an -- it is not to say it wouldn't have  
14 performed its function, but the technical  
15 specifications from a specific trip -- set of trip  
16 setpoint, one of them we found the reverse  
17 differential pressure, the tech spec itself is  
18 non-conservative relative to the design basis  
19 calculation and the supporting design basis.

20           With that issue we did go out and  
21 look at the actual field setpoints, and where did  
22 we actually put it and would it have been -- would

1 it have met tech spec, even though tech spec is  
2 non-conservative to the design basis calculation.

3           What we found was that the  
4 setpoint, during the period that we looked back,  
5 according to regulations to look at that as  
6 operable, the setpoint in the field was actually  
7 conservative relative to the tech spec. However,  
8 as you know, we have what I will call a generic  
9 issue on instrument uncertainty where we hadn't  
10 applied in all cases instrument uncertainty  
11 properly. When we added instrument uncertainty on  
12 not as found setpoint, it did take the value above  
13 the technical specification.

14           Therefore, that system will be  
15 declared inoperable. We have administrative  
16 controls in place right now in accordance with  
17 Administrative Letter 98-10 wherein we revised the  
18 tech specs so we will, we believe, maybe taken  
19 with administrative controls the setpoint that is  
20 required to support the design basis, and we will  
21 submit a license amendment for that tech spec, and  
22 we will submit that as a licensee report.

1           We believe that this is based on  
2 the reviews that we have done, that this is an  
3 isolated occurrence. We had one other finding in  
4 the safety features actuation system that had a  
5 setpoint also that was non-conservative to the  
6 design basis, but as it turned out, our sets in  
7 the field were adequate for that and that was a  
8 very, very -- in the second decimal point  
9 difference from that setting, but it was --  
10 nonetheless the tech spec setpoint was  
11 non-conservative relative to the supporting design  
12 basis calculation.

13       MR. GARDNER: Could I ask a question about  
14 that also? You use two criteria, you compared the  
15 setpoints, the design basis calculation and then  
16 you factor in the uncertainty?

17       MR. SCHRAUDER: Right.

18       MR. GARDNER: So your statement that it's an  
19 isolated occurrence, is that based on -- because I  
20 thought you said the uncertainty situation is a  
21 generic concern that is yet to be resolved?

22       MR. SCHRAUDER: We were looking at

1 uncertainty across the board.

2 MR. GARDNER: So the statement of isolated  
 3 occurrence, that talks to the fact that all of the  
 4 them appear to be conservative to the design basis  
 5 calculation, but until you complete your  
 6 uncertainty reviews, you cannot say that you don't  
 7 have more instances like this, is that what you're  
 8 saying, or have you been able to complete your  
 9 generic issue and have been able to apply both  
 10 considerations to the issue?

11 MR. POWERS: I believe we looked at tech  
 12 spec value, Ron, relative to this statement. We  
 13 do have a general ongoing assessment topical area  
 14 and instrument uncertainty non tech spec value  
 15 largely done with that, looking at margins that  
 16 are available in the plant. And if we look at the  
 17 set point tolerances, and in fact we had a team go  
 18 through, and we looked at margins to accommodate  
 19 that. That process is ongoing now, and as we  
 20 finish that up, we will have the answer to the  
 21 whole set. As we see it now, we will be  
 22 successful in that effort.

1 MR. GARDNER: Okay.

2 MR. PASSEHL: My question was related to  
3 your second bullet, your actual field setpoint was  
4 conservative relative to design, but not  
5 uncertainty. So did -- the actual field setpoint  
6 was taken or was it above the operability limit  
7 accounting for design basis and instrument  
8 uncertainty? I was confused by that.

9 MR. SCHRAUDER: In this particular case when  
10 you added the uncertainty to the calculated value,  
11 the design basis took it over the tech spec limit,  
12 so it was inoperable. I want to be clear on this  
13 issue too, and the relative significance of it.  
14 The trip mechanism itself would have functioned,  
15 it would have functioned at a higher set point.  
16 That relates -- the function would have worked, it  
17 would have come into play probably in the  
18 one-second time frame, possibly as little as one  
19 second difference between when.

20 The system would have actually  
21 initiated versus where you would set your trip  
22 setpoint, the system would have worked, it would

1 have just come into play somewhat later, and we  
 2 have not gone back and calculated when it would  
 3 come into play and what would be the impact of  
 4 that, but we have a high expectation that it would  
 5 have very little, if any, safety consequence as a  
 6 result of that.

7 MR. GROBE: Before you go on, one additional  
 8 question: when do you expect to have that  
 9 technical specification amendment request in to  
 10 us?

11 MR. SCHRAUDER: We would expect to submit it  
 12 before the end of the year, Jack. It is not  
 13 currently on scheduled to be submitted prior to  
 14 restart.

15 MR. GROBE: I have --

16 MR. SCHRAUDER: Administrative Letter 90-10  
 17 discusses the ability to utilize administrative  
 18 controls, and it talks about a timing tech spec  
 19 correction such that you're not depending on  
 20 administrative control for an extended period of  
 21 time.

22 MR. GROBE: I'm not sure before the end of

1 the year gives me the right level of specificity

2 on --

3 MR. SCHRAUDER: I talked to the licensing  
4 organization yesterday, Jack, and I did tell them  
5 to accelerate the preparation of that license  
6 amendment and get it in. I don't have the exact  
7 date for you yet, but we're going to start on it  
8 immediately and submit it.

9 MR. GROBE: Maybe Pat McCluskey would  
10 discuss that in his weekly call with NRR, when  
11 that will be submitted.

12 MR. SCHRAUDER: I believe that will actually  
13 wind up encompassing, too, the safety features  
14 actuation as well as the licensing control system.

15 The next system I will talk about  
16 is the auxiliary feedwater system. The auxiliary  
17 feedwater system looks like in the bottom line  
18 will support its intended function. We have two  
19 remaining issues to look at in there yet.

20 One has to do with pumps and  
21 piping. What we found is they may be subject to a  
22 lower temperature than previously had been

1 analyzed for. That difference is about eight  
2 degrees. This actually came about as a -- this  
3 wasn't one of the issues identified in the latent  
4 issue review or safety function validation, but it  
5 came out as a result of looking at a temperature  
6 difference that was identified in that, and that  
7 had to do with an inlet nozzle to the steam  
8 generator for off-speed water. So we analyzed  
9 those for the temperature difference, and they  
10 are, in fact -- the tubes in the steam generators  
11 that handle that came out fine.

12           We have looked at temperatures in  
13 this range for piping systems. I do not expect  
14 any impact on the piping system from when we do  
15 the final analysis, and we have to look at the  
16 pump itself that came out, and that really is an  
17 issue on viscosity of oil in the pump. But with  
18 that little difference between the vendor  
19 recommended values and the eight degrees, we fully  
20 expect that this one is going to show positive  
21 margin, and the system for these purposes will be  
22 operable.



1           That currently is not flagged as a  
2 restart required item, in that there is no way to  
3 get to those temperatures right now, so the system  
4 is fine the way it is and the temperatures that we  
5 see, but we will be moving forward with that  
6 analysis to get it resolved in a timely fashion.

7           We may wind up with an operability  
8 determination on ~~off-speed~~ aux-feed water as we move  
9 forward, so we will have one or the other  
10 completed. We will either have the analysis done  
11 or we will have an operability determination in  
12 place that supports operation at the current  
13 temperature.

14   MR. HILLS: What temperatures are you  
15 talking about, are you talking about how hot it  
16 get outside?

17   MR. SCHRAUDER: 40 something degrees down.  
18 It's applied temperatures in the system, so if  
19 temperatures did go down to say 32 degrees,  
20 whereas the vendor's recommendation currently is  
21 at 40 degrees

22   MR. HILLS: So you are not expecting to see

1 that type of temperatures until like this winter  
2 sometime?

3 MR. SCHRAUDER: That is correct. And then  
4 of course we have a very high expectation of  
5 showing operability there. But if you didn't, for  
6 instance, then we are dealing with obviously  
7 operability of the system that would pass  
8 operability as well, but really this one has a  
9 very, very low likelihood of coming out not  
10 acceptable.

11 MR. GROBE: Are you tracking how many  
12 systems you anticipate having in a degraded but  
13 operable status at restart?

14 MR. SCHRAUDER: Yes, and I don't have that  
15 specific answer for you today, but I have asked  
16 them, and we are starting to put that together. I  
17 want to make sure I understand every system that  
18 we will have an open operability determination on.  
19 I don't think there is going to be very many at  
20 all, Jack, one or two maybe.

21 MR. GROBE: As soon as you get that  
22 together, if you could get that to Christine, I'd

1 appreciate it.

2 MR. SCHRAUDER: We will do that.

3 MS. LIPA: And I had an extra question for  
4 you too, Bob.

5 MR. SCHRAUDER: An extra one?

6 MS. LIPA: You mentioned that you believe  
7 that there is a high likelihood that there will be  
8 -- the eight-degree difference is not going to  
9 have an impact to pass that. At what point does  
10 your process have a start the clock for the 60-day  
11 LER if you decide this was a ~~pass~~ past?

12 MR. SCHRAUDER: As soon as we would  
13 determine that it is a past operability issue,  
14 that it is, in fact, the clock would start.

15 MS. LIPA: And that is not planned before  
16 restart?

17 MR. SCHRAUDER: It's not planned for  
18 restart. It's not excluded from being done, but  
19 it's not a requirement for restart. We haven't  
20 flagged it as a requirement for restart.

21 MS. LIPA: Okay. Thank you.

22 MS. PEDERSON: Did the other temperature

1 bring you down to 32 degrees?

2 MR. SCHRAUDER: That's the lowest it could  
3 still be pumping water through the system.

4 MS. PEDERSON: Okay.

5 MR. SCHRAUDER: So that is -- that would be  
6 the lower bounds of it, I guess. Ken, do you have  
7 anything to add on that?

8 MR. BYRD: No. The only thing, it is 32  
9 degrees, and it's originally 40 degrees, and that  
10 was based on the temperature of the storage that  
11 was originally the source for the auxiliary  
12 feedwater system. If you are pumping water from a  
13 lake, service water can get down to 32.

14 MR. SCHRAUDER: Any other questions?  
15 The auxiliary feedwater system is  
16 another one that instrument uncertainty comes into  
17 play, and it's on the pump flow acceptance  
18 criteria, instrument uncertainty was not formally  
19 documented for that either. There is -- we have  
20 had prepared a calculation for that, and we have  
21 verified it has no impact, but it is not a done,  
22 done, done calculation in the system yet, so it's

1 -- the answer is the pumps are fine with  
2 uncertainty included in the calculation for most  
3 issues. Finalization is under way now.

4 MR. GROBE: It just begs a question. You  
5 found an issue with instrument uncertainty  
6 incorporated in setpoint on the system feedwater  
7 rupture control system and you found an instrument  
8 uncertainty here. But you concluded that it was  
9 an isolated occurrence?

10 MR. SCHRAUDER: For tech spec. It's not  
11 isolated on pumps, Jack. The instrument  
12 uncertainty is what I will call a generic issue  
13 and we are looking at the impact of instrument  
14 uncertainty on the calculations in the equipment  
15 across the board.

16 MR. POWERS: And that was a significant root  
17 cause CR that investigated that, and the team had  
18 to go through the process of looking at all the  
19 instruments and various levels of safety  
20 significance for setpoints. I think this is one  
21 -- in this particular one, Ken, where the  
22 surveillance instructed an allowance for

1 instrument inaccuracy, the issue was we didn't  
2 have a specific calculation that backed up the  
3 percent, and that was taken in that procedure, it  
4 wasn't that it was overlooked entirely.

5 MR. SCHRAUDER: It's highly unlikely that  
6 you will find a concern with pump flow criteria  
7 relative to instrument uncertainty. There is --  
8 if you put some uncertainty into the calculation  
9 where you call it instrument uncertainty for a  
10 flow criteria and put your acceptance didn't  
11 incorporate instrument uncertainty as a specific  
12 item in that, but -- and I will just tell you,  
13 you're not going to find a problem in the flow  
14 acceptance criteria because of not having  
15 incorporated instrument uncertainty. You would  
16 have to have really nailed it down to a very  
17 narrow band of acceptable flow to get there.

18 MR. GARDNER: You said there was an existing  
19 value for instrument uncertainty and you didn't  
20 have a calculation you could find to back it up.  
21 Now you have done a calculation at least it's in  
22 the final stages of review, did the numbers

1 correlate?

2 MR. BYRD: The original value was slightly  
3 less than the calculated or recalculation, but  
4 it's acceptable where it is right now.

5 MR. GARDNER: But there is some difference  
6 between what was originally documented and what  
7 you are finding?

8 MR. BYRD: In this case there was a small  
9 difference.

10 MR. GARDNER: Then in no cases are you  
11 relying, I assume, and you can tell me if I'm  
12 incorrect, on calculation values that have no  
13 calculation because of this information?

14 MR. BYRD: We are going back on at least all  
15 pumps, which is actually calculating instrument  
16 uncertainty and putting that explicitly in the  
17 calculation

18 MR. GARDNER: Okay, thank you.

19 MR. GROBE: I understand instrument  
20 uncertainty for non-tech spec parameters. Is that  
21 being considered as a topical issue?

22 MR. POWERS: It's not a topical issue, but

1 it's in the corrective action program, it's a  
2 significant root cause CR, Jack, with corrective  
3 action to follow-up, and it's one of our issues in  
4 terms of my list of top issues, technical issues,  
5 it's cited on that list, so we have a plan laid  
6 out, we have a team put together that did the  
7 investigation of the root cause, presented it to  
8 the senior management team, and they are moving  
9 forward with an action plan.

10 In other words, it's a significant  
11 effort that we are applying to it.

12 MR. SCHRAUDER: And will have an extent of  
13 condition associated with it.

14 MR. GROBE: And there is -- does this  
15 include Mode 4 mode restraints?

16 MR. POWERS: They are looking -- that is  
17 right at a mode restraint that would be required  
18 associated with these instruments.

19 MR. MENDIOLA: This is Tony Mendiola. I'm  
20 curious, what setpoint methodology do you use, and  
21 do you use a difference methodology for tech spec  
22 versus non-spec? I may be summarizing a few of



1 the things you have already stated, but --

2 MR. BYRD: I can't answer that question. I

3 could -- I'd have to talk to our I & C people to

4 get a --

5 MR. POWERS: I think we will follow up in

6 detail on a weekly call.

7 MR. MENDIOLA: That would be fine. Thank

8 you.

9 MR. SCHRAUDER: If there is no more

10 questions, we can move on to the component cooling

11 water system. The remaining items on the

12 component cooling water system are going to Mode

13 4, we are going to do a flow test. What we have

14 discovered is that we have never performed this

15 comprehensive flow test to measure the actual flow

16 into some of the small components to observe

17 component cooling. I'm talking about instruments

18 that pass -- that don't have any line flow

19 instrumentation on them. But major paths for

20 component cooling water, like the heat coolers and

21 all the larger components have been measured and

22 most have been flow tested, but we want to take

1 the component cooling water system and actually  
2 measure the flow to each of the components that  
3 it's required to serve.

4         We expect that to come out well,  
5 based on the history of the plant. We have never  
6 seen any -- any indication that they are not  
7 getting sufficient flow. We, of course,  
8 understand they have not been subjected to the max  
9 design temperatures that you'd see, and that's why  
10 we need to go out and do that flow test, but we  
11 anticipate that that flow test will demonstrate  
12 adequate flow to those.

13     MR. FARBER: You used the term comprehensive  
14 flow test. Is that differentiating between -- or  
15 what do you mean by that, is that something  
16 different than a full flow test which would  
17 analyze all the possible ~~pads~~ paths, including the minor  
18 flows?

19     MR. SCHRAUDER: The minor flows are  
20 specifically what we are going after, but it is a  
21 full test flow.

22     MR. BYRD: I think to answer that, it

1 actually looks at safety features at Level 3.  
 2 What we are doing is looking at flows under given  
 3 conditions of the water as you did up at the  
 4 higher levels of safety features actuation. You  
 5 are isolating different part of the system so  
 6 actually we are doing a full test, Marty.

7 MR. FARBER: All right.

8 MR. HILLS: Minor flow ~~pads~~ paths, what type of  
 9 equipment, are you talking about being safety  
 10 risk --

11 MR. BYRD Yes. Some of the kind of things  
 12 we are talking about are high pressure injection,  
 13 bearing cooler make-up, bearing cooler heat pump.  
 14 The flows in these are rather small, they are  
 15 anywhere from 6 to 12 gallons per minute, the  
 16 flows in that kind of a range, so these are the  
 17 kinds of flows which have an analytical  
 18 perspective. We couldn't run any actual data to  
 19 back up the analysis we're doing.

20 MR. HILLS: Thanks.

21 MS. PEDERSON: Did I hear you say the HPI  
 22 pumps and bearing coolers are included in that?

1 MR. BYRD: The bearing coolers were included  
2 in that.

3 MS. PEDERSON: Is that going to be impacted  
4 by your changing of the HPI pumps, and how is that  
5 going to fit into your verification of flow?

6 MR. SCHRAUDER: If we change the HPI pumps,  
7 they will have different seals and seal coolant  
8 requirements that will have to be verified for  
9 those pumps. If we modify the existing pumps, we  
10 will obviously have to verify acceptable seal flow  
11 for that pump.

12 MS. PEDERSON: So is it correct to say that  
13 for this particular test you are describing prior  
14 to Mode 4, it's uncertain yet which pumps you will  
15 have, or are you expecting to have tested the  
16 existing pumps.

17 MR. SCHRAUDER: What we expect to do is the  
18 initial and OP test and Mode 4 with existing HPI  
19 pumps, so it will be the seals on the pumps prior  
20 to entering into Mode 4.

21 MS. PEDERSON: Thank you.

22 MR. PASSEHL: Just one more question. Did

1 you verify the temperature ranges for component  
2 cooling water lower limit and upper limit? I  
3 guess you had a question on service water.  
4 MR. BYRD: We actually looked quite a bit at  
5 that component cooling water. The major issue was  
6 the upper limits, since we are not taking water  
7 from the lake and we had several condition reports  
8 dealing with that, and we were able to respond to  
9 them and the ceiling on the component cooling  
10 water system.

11 MR. PASSEHL: Thank you.

12 MR. SCHRAUDER: The other issue on the  
13 component cooling water that does have the  
14 potential to impact system operability is on a set  
15 of air-operated valves. As you know, during the  
16 course of this we have also I will say base  
17 labeled our air-operated valves. At many of the  
18 plants are doing it, we did find the LER, certain  
19 valves that cannot have adequate margin for the  
20 system that they were in.

21 A couple of those specific ones are  
22 related to the component cooling water, and if we

1 showed that they wouldn't fully open or fully  
2 close, depending on whether it's an isolating  
3 non-essential load or providing essential load,  
4 then that could render the system and potentially  
5 the supportive system, and that supported system  
6 in this case is the KD system, inoperable.

7 I will tell you that we are  
8 completing those analyses also, and they also are  
9 not final calculations, but preliminary results on  
10 that shows that, even though the reanalysis will  
11 show there would have been adequate flow in these  
12 cases. So we are anticipating operability on  
13 that, but not we can't assure that. That is --  
14 preliminary results of the AOV says there is lack  
15 of margin, and we are doing more detailed analysis  
16 of that now.

17 MR. HILLS: When do you expect to finish the  
18 analysis?

19 MR. SCHRAUDER: Prior to Mode 4

20 MR. POWERS: Should be within the next  
21 several weeks. We have the calculation performed  
22 by a subcontractor and it's in review now

1 MR. HILLS: Thanks.

2 MR. PASSEHL: Just another question. You  
3 talked about air operating valves, how about the  
4 air delivery systems, your compressor piping, your  
5 safety-related back-ups and all that, is that --

6 MR. POWERS: The operating valves, that is  
7 part of the scope we are looking at, the pneumatic  
8 pressures to the actuator itself, to the  
9 accumulating pressure times and building margin  
10 into the plan, longer emission times set for the  
11 important valves, large accumulators. There is a  
12 number of changes that we are making, and I will  
13 get into it in some detail later today, but we  
14 have that aspect as well.

15 MR. PASSEHL: Thank you.

16 MR. SCHRAUDER: The next system I will talk  
17 about is the decay heat removal/low pressure  
18 injection system. The remaining issues on this  
19 have to do with a net positive suction head and  
20 potential vortexing issues related to the system's  
21 role in boron precipitation control. The safety  
22 function validation showed this to be a potential

1 problem with the tested heights of water required  
2 for the suction ~~pad~~ path versus the analyzed actual  
3 height that you could achieve.

4           In that, where we are at with that  
5 is we are performing system additional analyses  
6 and testing on that method of boron precipitation  
7 control. Those preliminary results on that also  
8 indicate that this function would have been able  
9 to perform. Nonetheless, in parallel with that we  
10 are designing and we are installing a modification  
11 which will add an additional method of boron  
12 precipitation control so we won't have to rely on  
13 this method. This is our secondary method, prior  
14 method being through the HPI pump. We will add a  
15 third method right now, which also includes the  
16 decay heat removal system. It will eliminate this  
17 concern as any concern will actually add more  
18 margin on the boron precipitation control.

19           From a license perspective on that  
20 we are still looking at it because this is  
21 identified in our licensing basis as our secondary  
22 method of boron precipitation control. There were



1 concern exceptions associated with that, so we  
2 need to look at that perspective, and whether we  
3 need to change that licensing basis or whether we  
4 will be able to go with it.

5         This license approach is still  
6 valid even though we may subsequently change the  
7 approach. My sense is that we will probably  
8 change it prior to start-up to coincide with the  
9 new method being our secondary method.

10       MR. GROBE: This is a difficult issue to  
11 visualize and understand. Jim or Bob, could you  
12 take a few minutes and just explain exactly what  
13 boron precipitation is that you are going to  
14 modify such that you will have an alternate method  
15 to prevent boron precipitation.

16       MR. SCHRAUDER: I think Ken is the best --

17       MR. BYRD: The issues we have had here with  
18 this is our back-up method of boron precipitation  
19 control. And the way the back-up method is  
20 currently designed to operate, we would take one  
21 of our low pressure injection pumps --

22       MR. GROBE: Why don't you back up and

1 explain what -- how boron precipitation occurs,  
2 what accident consequences result in it and what  
3 the outcome of boron precipitation is, what  
4 problems it causes you, and get into how you are  
5 solving it.

6 MR. BYRD The issue of ~~borrow~~ boron precipitation  
7 control involves loss of cooling accidents in  
8 specific locations, the location being the cooler,  
9 and in this particular -- in these particular  
10 locations we would not have injection of coolant  
11 through the core, and over a period of time, as a  
12 result of decay heat, we could have -- we would  
13 potentially have boron concentration in the core  
14 that would increase and we'd have precipitation in  
15 the core.

16 So our method of preventing this is  
17 to have a method of boron precipitation control  
18 which is initiated after a loss of cooling  
19 accident, and essentially the method has to be a  
20 method that allows such amount of recirculation to  
21 go through the core, and the -- currently the  
22 method we have for doing this, one of them

1 involves a high pressure injection pump, and we  
2 would take a high pressure injection pump and we  
3 would inject it through our -- what we call our  
4 auxiliary spray line. That is our primary method,  
5 and that's through our high pressure injection  
6 pump.

7           Our alternate method is through our  
8 normal decay heat drop line, and then we are going  
9 to follow the suction of our low pressure  
10 injection pump and go back through the core, so  
11 essentially circulating through the core through  
12 our normal drop line and back into the normal  
13 injection.

14           The issues that we came up with or  
15 that was actually identified during the safety  
16 function validation project, there was really two  
17 issues. The first issue we identified was this  
18 issue, which is vortex, and the issue is when you  
19 are taking a suction from a low pressure injection  
20 pump and you are taking the suction from the drop  
21 line, you have to have sufficient level in the  
22 reactant coolant system. This is after you have

1 -- you have had a lot of coolant accidents. There  
2 was a concern that we may not have sufficient  
3 level in the reactor coolant in order to maintain  
4 our pump's net positive suction.

5           And the issue here was analytically  
6 we had determined if this would be acceptable.  
7 There was some question over a test result we had  
8 from the plant over our height of the level in the  
9 ~~reactant~~ reactor coolant system and our potential for net  
10 positive suction on the low pressure injection  
11 pumps. And we are currently analyzing that, and  
12 we believe that is resolvable. We believe  
13 actually there is probably an issue with the test  
14 results that we initially had. And currently we  
15 are in the process of analyzing that.

16           We also had a second issue which  
17 was identified as a result of looking into the  
18 first issue. We had observed that our drop line  
19 actually rises to a higher level, and so we had a  
20 question of whether or not we would have a  
21 flashing in that particular part of the drop line.

22           That was actually a somewhat

1 greater concern that we had, as opposed to the  
2 vortexing issue, and that issue we actually have  
3 -- although we have not formally completed  
4 reviewing the test results and calculations, we  
5 believe that is resolved. We had calculations  
6 performed, and we also had an actual experiment  
7 performed to validate the results of the  
8 calculations, and based on that it appears that  
9 the height elevation difference we developed will  
10 not be a problem, so that issue has been resolved.

11         We still have to formally accept  
12 the calc and conclude that. So essentially these  
13 two issues, there still is an OEM issue of  
14 vortexes. From what we have heard, preliminary  
15 results are that issue will also be able to be  
16 resolved, that will make our current back-up  
17 method, which is the back-up method you are  
18 referring to, we will be able, I believe, to show  
19 as acceptable, and I feel very confident that we  
20 will be able to show that.

21         As a result of the concerns that we  
22 had, though, with these two issues, we had

1 initiated looking at other methods we could use  
2 for boron precipitation control, and as a result  
3 of that, we did initiate this modification to come  
4 up with another back-up method. And actually,  
5 once we got into there, there are some advantages  
6 to this other method, which is the reason that Bob  
7 had mentioned we might actually go ahead and make  
8 this our primary method.

9           The advantage is, No. 1, it  
10 completely eliminates this issue of vortexes that  
11 we were talking about. You're not taking a  
12 suction from the reactor cooling system. The  
13 other back-up method we'd be looking at continues  
14 to operate from the pump, would continue to  
15 operate from the discharge. We have a drain valve  
16 on the discharge of the pump. The stream from the  
17 cooler would take that back to the boron line  
18 existing connection, so we'd be able to run from  
19 the discharge pump back to the drop line,  
20 essentially running in a reverse direction from  
21 the drop line.

22           The advantage is that we have a

1 non-vortex issue. We'd also eliminate the single  
2 failure. Now we have a single failure exemption  
3 method. We could eliminate that because the loss  
4 of a ~~training~~ train of a diesel would not affect its  
5 operation.

6           So there are some advantages, which  
7 is one of the reasons we are continuing to pursue  
8 this method. That pretty much summarizes where we  
9 are at right now.

10   MR. SCHRAUDER: I'm not sure I'd call that a  
11 summary.

12   MR. BYRD: I'm sorry.

13   MR. SCHRAUDER: I can tell you that was a  
14 lot more detail than I could have given you on  
15 that one. I'm glad we have Ken here with us.

16           The next issue still remaining is  
17 the ~~delay~~ decay heat removal/low pressure injection  
18 system. On the pump there is a cyclone separator  
19 for that purpose, and the reliability of that  
20 cyclone separator is called into question, and we  
21 are continuing to evaluate that and the impact on  
22 the seal of the decay heat removal and low

1 pressure injection pumps. And then we will  
2 perform flow test demonstrating system margin.  
3 That is scheduled prior to restart, and again this  
4 is an issue that the last measurement that was  
5 taken on the system I believe was in the 1998 time  
6 frame, and it showed margin, but it showed  
7 decreasing margin at that time.

8           And when coupled again with  
9 instrument uncertainty now put into the  
10 calculation, we have to verify that we do, in  
11 fact, have acceptable margin on the capability of  
12 the system, so that will be demonstrated prior to  
13 restart.

14           And then I had mentioned the  
15 air-operated valve potential impact on the system  
16 also.

17   MR. GROBE: The sump degree in the question  
18 on the seals is that you anticipate that that is  
19 going to be a challenge for you, and would it  
20 result in a modification to the pump?

21   MR. POWERS: We are currently looking at a  
22 modification, because it's relatively straight



1 forward, and we can practically have a replacement  
2 available in two weeks, so it's on its way, so  
3 rather than going through an analysis, we will  
4 simply replace it, Jack. That's the current plan.

5 MR. SCHRAUDER: The next system is the  
6 emergency diesel generators. As you recall, we  
7 had a voltage and frequency drop on those during  
8 the first load step. We have had transient  
9 analysis performed on that for the impact of that  
10 frequency ~~value~~ value. We knew that we had a voltage  
11 and frequency drop on that, what we didn't have  
12 was a transient analysis that demonstrated it was  
13 acceptable.

14 We performed that transient  
15 analysis, we have had that performed for us by  
16 MPR, and we are in the final stages of owner  
17 acceptance of that calculation and demonstrate  
18 that that voltage frequency is not a problem for  
19 us.

20 MR. PASSEHL: What was the magnitude and  
21 duration of the drops?

22 MR. POWERS: Let me take a stab at that.

1 The drops in voltage, I think the -- initially the  
2 threshold we were looking at was approximately 75  
3 percent control and limitation. We dropped  
4 somewhat below that, and I don't know that I can  
5 give you specific numbers on it right now. Again,  
6 that is something I couldn't give you specific  
7 numbers on, but I would say we are below 75  
8 percent, and the cycle timing in our use for  
9 several cycles, in fact, it's longer than that,  
10 although we have gone through and looked at  
11 equipment and its functionality to assure that we  
12 know where we stand, there is two concerns. One  
13 was voltage drop, and particularly the initial  
14 step loading on the diesel generator, the other  
15 was frequency drop. And both of those cases what  
16 we have done is we did a safety feature actuation  
17 test at the site.

18           We are running the diesel generator  
19 and electrical system through the -- what would be  
20 the emergency sequencing of loading, and then we  
21 took the data on the performance both in voltage  
22 and frequency dips, although they dipped below

1 what we -- was in our licensing basis for  
2 criteria, we also had data on the safety-related  
3 loads that are supplied by the diesel generator,  
4 such as motor-rated valves, an important one, we  
5 receive specified times to actuate the cycle to  
6 the safe position. And we have -- during our test  
7 we time those actuations to make sure they meet  
8 the criteria. What we found in each case that  
9 there was margin, the criteria is such that they  
10 were acceptable.

11           And the model that Bob described  
12 that MPR prepared that was done for testing at the  
13 site and benchmarked the model and use that model  
14 to predict the full accident conditions on the  
15 system, what would be the results. So we took  
16 that full accident condition, looked at the  
17 results we got in the margins that we had in the  
18 equipment, and found it was acceptable. And we  
19 have a calculation that details that evaluation  
20 out for us at the site, and I can give you the  
21 specific numbers on the weekly call.  
22   MR. PASSEHL: Okay

1 MS. LIPA: The question I wanted to follow  
2 up, so your plan for resolution is analysis and no  
3 hardware changes?

4 MR. POWERS: That's right.

5 MR. GROBE: Will that include a ~~division~~ revision to  
6 the F.S.A.R.?

7 MR. POWERS: Yes, we need to.

8 MR. SCHRAUDER: The F.S.A.R., the statement  
9 will not describe accurately the cause for the  
10 frequency drop also, and that needs to be  
11 corrected.

12 MR. PASSEHL: Then would you translate that  
13 into in your procedures for the diesel to allow  
14 for these fluctuations?

15 MR. POWERS: When we revise our F.S.A.R. we  
16 will have to go through the formal process to do  
17 that. Through the process that will revise then  
18 licensing basis and the acceptance criteria and  
19 procedures involved.

20 MR. SCHRAUDER: There probably will be no  
21 procedure change. This was the same period of  
22 time, just what happens to it when it does start,

1 so I would not anticipate a procedural change as a  
2 result of that.

3 MR. POWERS: And I guess a fine point on  
4 that study was that the surveillance instruction,  
5 the acceptance criteria did not include these  
6 particular parameters. In other words, they  
7 weren't tech spec transfers that were part of the  
8 surveillance. However, they were noted as being  
9 outside the licensing basis and had conformance  
10 needed to resolve.

11 MR. GARDNER: Did you conduct tests and  
12 analysis on both details and compare them to each  
13 other to see if they are the same type, I believe,  
14 in manufacturer, and roughly the same age to see  
15 if they are responding in the same manner, or was  
16 there a difference between the two?

17 MR. POWERS: I believe the answer to that is  
18 yes, but I don't have specifics on whether there  
19 was any -- what difference there would be.

20 MR. GARDNER: And whether or not the data  
21 that you are obtaining, it fairly well correlates  
22 to other utilities that have similar diesels of

1 the same vintage and type?

2 MR. POWERS: We didn't do the same vintage  
3 and type. However, we know our Beaver Valley unit  
4 has an exception from the voltage criteria in  
5 terms of the dip is somewhat below 75 percent  
6 criteria, and that is written in the license  
7 basis, so it was recognized at that site earlier  
8 on, so it's not unusual from our standing in the  
9 industry to have the sort of circumstances as long  
10 as technically it's addressed and it's acceptable

11 MR. GARDNER: I guess I was on the frequency  
12 more than the voltage.

13 MR. POWERS: I'd have to check on that one.

14 MR. GARDNER: Just curious.

15 MR. FARBER: Did you examine or try to  
16 determine whether there was a relatively straight  
17 forward hardware modification that would resolve  
18 this and ensure that the diesels don't have this  
19 unacceptable dip rather than pursue merely  
20 analytical --

21 MR. POWERS: Yeah. That's a good point.

22 One of the things we are looking at for the longer

1 term is an electronic governor. An electronic  
2 governor may give us a faster engine response and  
3 minimize the dips. We are also looking at  
4 potential for the breaker closure time, and  
5 permissives on diesel generator. Output breaker  
6 closure currently closes very early on in the  
7 start-up sequence before the engine has reached  
8 full rated conditions, both in the voltage and  
9 frequency, and as a result that's changed during  
10 transient to keep above the limits. So we put an  
11 -- we put a permissive on that breaker on  
12 frequency, for example, I think the breaker closes  
13 in at about 57 rather than 60, so if we put a  
14 permissive, it could help resolve as well.

15           So there is a couple of things we  
16 can do in the longer term. The electronic  
17 governor is something we are very interested in.  
18 We have done that modification at Beaver Valley.  
19 It upgrades units to the latest technology, and  
20 something I'd like to do in the future for the  
21 engines.

22   MR. GROBE: There is two potential licensing

1 basis provisions you have identified so far, one  
2 for boron precipitation and one on the diesel  
3 under frequency and under voltage. Do you  
4 anticipated either of those requiring agency  
5 review?

6 MR. SCHRAUDER: I would not anticipate that  
7 we would necessarily need to have the boron  
8 precipitation one completed by restart. That  
9 system will be demonstrated to be able to do that.  
10 In the longer term we may want to change the  
11 secondary method to the modification that we put  
12 in, but we would still meet the license basis in  
13 that. This other one may or may not require, you  
14 know, licensing action, I'd have to go through the  
15 5059 process. You'd have to determine whether, in  
16 fact, it required a license amendment. My sense  
17 is that it probably will not.

18 MR. GROBE: Just be sensitive to the fact  
19 that that takes a little bit of time.

20 MR. SCHRAUDER: Yes, sir.

21 The other issue identified on the  
22 system remaining that we talked about already is



1 the room temperature was questioned, it may exceed  
2 maximum analyzed value. The new analysis  
3 demonstrating past operability has been performed,  
4 it is in the review cycle to be approved,  
5 demonstrated the maximum temperature that the room  
6 would see, the equipment of the room would have  
7 tolerated that temperature.

8           However, this is -- as we said  
9 before, we are installing additional ventilation  
10 in that room, and that modification will provide  
11 us with more margin on that issue.

12           And next is the high pressure  
13 injection system that -- we talked about this at  
14 several of our meetings. The issue here again is  
15 sump debris could potentially result in pump  
16 damage during the recirculation phase, but unless  
17 you want more information on that, we have pretty  
18 well covered that issue. We need to reach  
19 resolution on that. We have in this case declared  
20 that system inoperable. We have -- I believe last  
21 week we submitted an LER on this issue.

22           The other issue that's been left

1 open to resolve on this yet is the motor for the  
2 pump exceeds its nameplate rating during certain  
3 accident conditions. It does not -- we are doing  
4 evaluations now, and it does not look like it's  
5 going to, in any case, exceed its service factor,  
6 which is an acceptable range for the motor to be  
7 operated in. We expect that this motor question  
8 will be answered effectively, and the motor will,  
9 in fact, continue to perform and provide some kind  
10 of function.

11 MR. GROBE: Has the tech spec provision for  
12 the HPI pumps, has that been submitted?

13 MR. POWERS: Not yet. The license amendment  
14 request? Not yet, Jack. We had a meeting on that  
15 this morning between Lou Myers and our licensing  
16 analytical staff, and it's heading towards our  
17 station review board today and for the off-site  
18 review board following that. So we would expect  
19 that would be probably the latter part of this  
20 week, early next week.

21 MR. SCHRAUDER: Depends on availability  
22 right now of the off-site review committee. They

1 have drafts of it to review, we need to get them  
2 the final copy and then have a meeting with them.

3 MR. PASSEHL: You are referring to in your  
4 second bullet, is that --

5 MR. SCHRAUDER: Yes

6 MR. FARBER: I believe when I was last at  
7 the site I saw a list of topics that were under  
8 consideration or had had LERs issued. One of  
9 those related to HPI, and that was survivability  
10 of the HPI pumps for a certain class of small  
11 break LOCA. This is not listed on here. Can you  
12 tell me where that stands?

13 MR. SCHRAUDER: That is the issue, Marty,  
14 the small break LOCA is functioning off of, or are  
15 you talking about the minimum reserve?

16 MR. FARBER: That was the topic under  
17 consideration for LER; I don't see it on the list.

18 MR. SCHRAUDER: That's right, and -- that's  
19 right. I believe it is resolved, and it did not  
20 result in operability of the system, so what I  
21 went through and tried to pull out on the issue,  
22 what has not been resolved yet. That was an open

1 CR, and therefore it would have showed up on the  
2 list. I'd have to confirm --

3 MR. BYRD: That issue has not been resolved  
4 at this point. That current LER, the issue you  
5 are seeing is the issue of minimum ~~reset~~ recirc, when we  
6 have gone to the isolated ~~reset~~ recirc and that is  
7 currently still being resolved, and we are looking  
8 at a couple of different possibilities,  
9 potentially minimum ~~reset~~ recirc operating from the  
10 sump, or some other alternative that is very much  
11 -- I think the reason this is very much tied into  
12 this first issue of the -- where we are kind of  
13 looking at HPI pumps as an issue, how we deal with  
14 the HPI pump when rating from the sump. So it's  
15 rolled into the first bullet. The team that is  
16 working on that is all the same team for the  
17 minimum ~~reset~~ recirc issue.

18 MR. FARBER: Thank you.

19 MR. SCHRAUDER: The final issue is  
20 inconsistencies between surveillance test criteria  
21 and technical specification requirements. The  
22 tech spec surveillance test for HPI is -- flow is

1 based on a LOCA analyses, so it protects from the  
2 flow for LOCA.

3           What we found is the actual flow in  
4 this case, the flow that we have demonstrated  
5 supports the LOCA analyses. It's an issue of tech  
6 spec that actually had a more restrictive flow in  
7 it than the -- the LOCA analysis flow would be.  
8 The actual flow as exhibited in the field is  
9 expected to meet both the design and tech spec  
10 flow.

11       MR. BYRD: If I could add, the tech spec  
12 flow was not -- was actually -- was appropriate  
13 and at the point in which the tech spec is  
14 designed, our tech spec is designed in a single  
15 point, and when one of our engineers looked at  
16 this and actually turned this into a system curve,  
17 the tech spec point, and they noticed that at the  
18 very low flow, the very low flow, the tech spec  
19 and analysis curve would cross each other, so that  
20 was really the issue here. So at the point where  
21 we actually measured the tech spec point, our  
22 analysis flow was less than our tech spec flow.

1 So that was the point I wanted to make.

2 MR. SCHRAUDER: But the actual flow --

3 MR. BYRD: The actual flow meets both, so we

4 don't have a -- the issue is the two curves would

5 cross over very low flow if you were to take the

6 tech spec point and try to expand the rate into a

7 system curve.

8 MS. LIPA: Do you anticipate a tech spec

9 change will be necessary?

10 MR. BYRD I don't believe so right now for

11 that. We are -- I'd have to -- I don't believe

12 so. I'd have to -- that's still under

13 consideration.

14 MR. GARDNER: Were you ready to go to

15 another page? Because the instrument uncertainty

16 issue at the very bottom, is that another instance

17 where you have done preliminary results from an

18 uncertainty issue or have you a basis for saying

19 that you're pretty sure the uncertainties will be

20 no problem?

21 MR. BYRD: In this case we actually have

22 completed the calculation, and the issue

1 uncertainty calculation has been performed and  
2 reviewed. Neither have been signed off yet. This  
3 is another calculation which actually did have  
4 instrument uncertainty in it. However, when we  
5 went through -- and I'm not an I & C person -- we  
6 did a different methodology, and the results,  
7 which is apparently improved, and the results were  
8 slightly different, though again it was not a  
9 significant difference between what we had prior  
10 to this and what we have now.

11 MR. GARDNER: Thank you.

12 MR. SCHRAUDER: The next system is  
13 ECCS-HVAC, or the cooling systems. The remaining  
14 issue on this really is a design issue that is not  
15 one that came out of latent issue reviews. In our  
16 reviews we found a past -- at the time what that  
17 was called operable justification on the HVAC or  
18 ECCS that allowed, under certain conditions, to  
19 take one of the coolers out of service and the  
20 system would still be operable.

21 When we went to the separation from  
22 the latent criteria and heat up of the ultimate

1 heat ~~syne~~ sink, it was found that this operability  
2 determination looks like it was still used, at  
3 least one or two times after that, so it was a  
4 flawed operability determination and could impact,  
5 depending on whether the system was out longer  
6 than its allowed outage time, in a situation could  
7 result in an LER as a tech spec violation. And  
8 this is -- a past operability will be issued on  
9 this and not a current that will pull an  
10 operability issue out of the records.

11 MR. FARBER: I'm a little confused. Are you  
12 saying that this operability determination was  
13 actually flawed, or that its application was  
14 superseded by changes that you have made in the  
15 plant, and it should have been reflected back --

16 MR. SCHRAUDER: Right, at the time it was  
17 used. It wasn't valid later in life, so the use  
18 of it was flawed, it was flawed for the current  
19 design basis, however you want to look at that.  
20 But, in fact, it was acceptable when it was  
21 written for what was considered to be the license  
22 basis at the time.



1           When we revised it to the changed  
2 -- the ultimate heat temperature, it would not  
3 have been operable in that case.

4   MR. FARBER: So this is more of a  
5 configuration control type issue rather than a  
6 flawed operability determination.

7   MR. SCHRAUDER: Well, yes, but it's still  
8 relying on operability determination without  
9 effective controls configuration management. You  
10 could look at it. We didn't want to draw the line  
11 on what's a design issue and what's not a design  
12 issue. The operability determination was based on  
13 expected design that was not accurate.

14           And then the last system really is  
15 the electrical distribution system or whatever is  
16 on the -- as we talked in the past in some of our  
17 meetings, we are doing a complete reanalysis of  
18 the system using the electrical analysis program.

19           And that analysis is not complete  
20 yet, so there is a potential in the electrical  
21 distribution system that that analysis could show  
22 some lack of margin in the electrical distribution

1 system, we just don't have the final analysis on  
2 that.

3           They are expecting very shortly,  
4 like today or the next couple of days, to be able  
5 to start running those analyses. The model is  
6 pretty much set now and ready to go, so now we  
7 will be loading all different scenarios and models  
8 into that to see what the analysis shows.

9           If this is one that could result in  
10 impact, you know, on the systems down the line,  
11 motor operated valves and the like, has some slim  
12 potential of some additional modifications to the  
13 plant, some impact on operability. We anticipate  
14 that in the final analysis this one will probably  
15 demonstrate that the electrical distribution  
16 system probably will function. It may not have as  
17 much margin as the previous design, may not have  
18 shown as much margin as you'd like, but we are not  
19 anticipating huge ramifications or modifications  
20 to come out of this. But we can't say that with  
21 any degree of certainty yet because the analysis  
22 is not complete

1 MR. GROBE: Two questions, last time I  
2 touched this issue, I understood the calculations  
3 were going to be completed in the second week --  
4 near the second week in June.

5 Is that still an accurate date?

6 MR. POWERS: That's right, that is on track,  
7 the second week in June is what we are targeting  
8 for operability determination for mode change,  
9 Jack, and we are on track for that with the  
10 current schedule Bob described.

11 MR. GROBE: The other question really goes  
12 to the issues we just mentioned, Bob. What is the  
13 basis for your belief that it's going to be  
14 operable and -- may be degraded but it's operable.  
15 What do you -- what foundation do you have for  
16 that belief?

17 MR. POWERS: One of the major considerations  
18 I described earlier was the motor-operated valves  
19 in the plant. And in this case the input to the  
20 motor-operated valves is voltage supplies by the  
21 AC distribution systems. In our motor-operated  
22 valve program, in many cases the input voltage was

1 assumed to be in a low range of 80 percent as a  
2 conservative measure and starting from that point  
3 then we feel there is margin built into those  
4 calculations, capability calculations to accept  
5 some voltage drop-off in this system, and -- but  
6 that's what we're looking at most carefully,  
7 engineering is pulling out all of the design  
8 information from the programs. So as soon as the  
9 results are available they will be able to give us  
10 a thumbs up or not thumbs up on the valve's  
11 performance.

12 MR. GARDNER: So that includes degraded  
13 voltage first and second level, et cetera?

14 MR. POWERS: Right. Yes, it goes down to  
15 480 volts distribution, and it's carrying -- it's  
16 largely looking at off-site voltage, and it has  
17 the degraded off-site voltages factored into it.  
18 And then it carries down to the distribution  
19 system and takes the bus voltage and 480 voltage  
20 and looks at the service loads, whether valves or  
21 pumps, various motors, fans and their operability.

22 MR. GARDNER: So this has wide-ranging --

1 potentially wide-ranging ramifications that would  
2 cross a lot of areas, including fire protection  
3 and a lot of other areas where coordination and  
4 breaker sizing and capacity, everything would have  
5 to be reviewed?

6 MR. POWERS: Right, that's right. And Bob  
7 says those transients are being analyzed. In  
8 fact, that is -- and I will talk to this in a bit  
9 more detail later, but what the electrical  
10 engineering team has been working on closely with  
11 operations representatives at the site is the  
12 various equipment and when it operates and which  
13 modes of the plant looking for what is the  
14 limiting worst case conditions, and then looking  
15 at how the system would perform under that  
16 condition and what the voltage is supplied to  
17 various components, so -- and we have also been  
18 evaluating all the input that goes into the  
19 program, so you can imagine in the plant the many,  
20 many different components, going and collecting  
21 the data and validating the data for motor power,  
22 what the actual motor power that is drawn by the

1 various motors throughout the plant, and getting  
2 that accurately modeled into the system.

3       What I will point out and what was  
4 done at the plant, we were using the original  
5 instruction analysis software that the plant was  
6 built to over the years, and one of the issues  
7 that came up, that small changes were made to the  
8 plant, and they were each individually assessed  
9 and documented against the original calculations.

10       However, a collective reanalysis  
11 needed to be performed, and this had been  
12 identified several years back. The desire was to  
13 do a reanalysis to upgrade the software and  
14 process. As we got into, in last year's  
15 engineering reviews we found there was more  
16 questions raised that we wanted to factor into the  
17 reanalysis to make sure we answered all the  
18 various questions that had come up in the past  
19 year. So it's a pretty extensive reanalysis  
20 effort. We should be seeing the results of that  
21 starting this week.

22   MR. SCHRAUDER: That completes the

1 discussion of the systems covered under the latent  
2 issue reviews and safety function validation.

3           The next topic --

4     MR. GROBE: Let me make sure I understand --  
5 there is really two questions here, I want to  
6 understand correctly. One is the operability of  
7 the electrical distribution system, and that  
8 primarily we have to go with breaker fusion  
9 coordination. The second is the operability of  
10 the service components; is that correct?

11     MR. POWERS: That's right, that's right.

12     MR. GROBE: And it's your review looking at  
13 how you did the calculations for sizing valves and  
14 whatnot that you have had an unusual amount of  
15 design margin in the low voltage for those valves,  
16 so that we don't expect this to be an issue  
17 regarding the valves. Do you have a view on a  
18 breaker fuse coordination issue?

19     MR. POWERS: That still remains to be run,  
20 Jack. I talked to the analyst yesterday on that,  
21 they're working through the model, and I don't  
22 have an -- I don't have a real view on that as yet

1 until I get their results out and see what the  
2 load flow is, and they will get a better sense on  
3 whether the protective free line design is  
4 satisfactory.

5 MR. GROBE: Yeah, probably. Do you have  
6 generic information on this? This is not the  
7 first plant that's had these kinds of problems.

8 MR. GARDNER: No. In fact, we have  
9 previously looked at degraded voltage settings and  
10 these type of valuations in the past, even at  
11 Davis-Besse. Unfortunately, in our reviews we  
12 didn't have the time to go down through the 480,  
13 120-volt level, and so we stopped somewhere  
14 between 4160 and 480, so we couldn't very well be  
15 -- the results will find issues that weren't  
16 previously identified

17 MR. GROBE: We have not had generic  
18 communications with any supporting agency.

19 MR. GARDNER: We have had all sorts of  
20 information about degraded voltage, about the  
21 concern of having adequate voltage all the way  
22 down to -- particularly to the 120-volt relays,



1 and whether or not the relays are adequate based  
2 on the numbers, you have to perform the function.  
3 So we have had lots of communications, there has  
4 been lots of actions certain utilities have had to  
5 take in response to the findings in this area.

6 MR. GROBE: Thanks.

7 MS. LIPA: Before we go onto the next  
8 section, this is a good time for a break, but I  
9 wanted to make sure there weren't any questions  
10 from here or headquarters on Bob Schrauder's  
11 topics. Anybody else, anything from headquarters?

12 (No response.)

13 MR. SCHRAUDER: The next section is topic  
14 area issues and continuing with the design  
15 reviews.

16 MS. LIPA: So we will have another shot at  
17 Bob Schrauder. Well, I still think it would be a  
18 good time for a ten-minute break. We will be back  
19 at 2:30.

20 (Whereupon, a recess was  
21 had, after which the  
22 ~~hearing~~ meeting was resumed as

1 follows:)

2 MR. GROBE: It's 2:30, and we're ready to  
3 continue. Go ahead.

4 MR. SCHRAUDER: Thank you, Christine. The  
5 next area that also involved design reviews, if  
6 you will, are topical area reviews. The purpose  
7 of these reviews, they were cross-cutting generic  
8 issues that had the potential to affect multiple  
9 systems.

10 Listed here are the five that we  
11 did. And we have gone through the results of  
12 those topical analyses with you at the previous  
13 public meeting. I was not anticipating going  
14 through all of them again. What I have done on  
15 the next page is, the last time that we met,  
16 updated on this, we had not completed and signed  
17 off on the Appendix R topical review. So I have  
18 listed in here in the same format that we  
19 presented in the past those actions that we need  
20 to do to support restart that came out after  
21 collective significance reviews in the Appendix R  
22 world.

1           As you know, one of the outstanding  
2 issues that we have on our fire protection  
3 inspection is this analysis that -- to rebaseline  
4 Appendix R transient analyses, and that work we  
5 have given you had the schedule on when we  
6 anticipate that transient analysis, and that was  
7 identified in the transient analysis needed to be  
8 completed

9     MR. GROBE: Can I go back to the last item?  
10 I'm still having difficulty understanding what you  
11 designated as topical areas. I understand that  
12 you have indicated that the instrument uncertainty  
13 question was a significant condition adverse to  
14 quality and you scheduled a root cause assessment  
15 for that and extent of condition review. But why  
16 isn't that a cross-cutting generic issue that  
17 could affect multiple systems?

18     MR. POWERS: Well, that was specific. We  
19 looked at it as a specific issue. It was a  
20 significant root CR that we needed to evaluate  
21 what the policy was at the site over the years for  
22 ~~spec tech~~ tech spec and non-tech spec significant

1 instruments and ensure the setpoint policies were  
2 acceptable to us.

3           So we are working that through a  
4 specific issue. When we talk about topical area  
5 reviews, these merged from the latent issue  
6 reviews inspection results. It was a collection  
7 of CRs. In many cases these would include, say,  
8 30 CRs, sometimes more all around one of these  
9 specific issues.

10           And as you recall, when we went  
11 through, after going through the latent issue  
12 reviews, inspection results we prepared a  
13 collective significance assessment report that  
14 took all the various CRs that had been issued, the  
15 questions that were asked, and we put this through  
16 areas, looking for numbers of questions, number of  
17 discrepancies because we looked at lots and lots  
18 of issues, and Marty's got his copy in his hand  
19 there, he's well familiar with it.

20           And so we looked at how many  
21 discrepancies for the number of attributes  
22 checked, and those were the areas where there were

1 significant numbers of distribution, which means  
2 every number of questions, CRs asked. So what  
3 goes together? These are the ones that --

4 MR. GROBE: I understand what you're saying,  
5 Jim, that during your latent issues reviews you  
6 identified a number of CRs that affected seismic  
7 qualification, station flooding and so on, and you  
8 called those out individually as cross-cutting  
9 engineering concerns.

10 MR. POWERS: Right.

11 MR. GROBE: And this one, if I understand  
12 correctly, was -- had a specific issue regarding  
13 instrument uncertainty, and when you started  
14 pulling the piece of yarn, the sweater unraveled  
15 and it became a broader issue that you are doing  
16 analysis on, it became kind of a cross-cutting  
17 issue. So I think I now understand how the two  
18 issues got on two different lists. My question  
19 now is, how many other non-topical areas do we  
20 have that are cross-cutting concerns that are  
21 engineering concerns that can affect multiple  
22 systems?

1 MR. POWERS: Well, two of them come to mind,  
2 and we are talking about today, one is the  
3 electrical distribution system, as we work through  
4 the reanalysis of that. And the other one was the  
5 air-operating valve program, because they can be  
6 in various systems and have the operating valves,  
7 and I will go over that in a bit more detail, so  
8 they are asking several programmatic issues that  
9 have come up that do cross-cut in various systems.

10 MR. GROBE: Are there any others?

11 MR. POWERS: Not that come to mind.

12 MR. GROBE: Could you just, once you get  
13 back, and not in a meeting context, but once you  
14 get back, think about it, could you? If there is  
15 any additional ones could I get a call and make  
16 sure I understand the breadth of this?

17 MR. POWERS: Okay.

18 MR. GROBE: Thank you.

19 MR. SCHRAUDER: Again, the next slide was  
20 just intended to show what came out of the  
21 collective significance review, Appendix R. The  
22 biggest one, again, was the rebaselining of the

1 transient analysis, and then any procedure  
2 revisions that might result from that reanalysis  
3 will be incorporated prior to restart.

4           Another one goes to begin the  
5 electrical distribution system, the analysis for  
6 the emergency diesel generator, Component cooling  
7 water system, and service water system for  
8 Appendix R scenarios. The adequacy of  
9 calculations performed in response to requests for  
10 assistance, what that was, and I did kind of just  
11 briefly touch on that in one of our meetings. We  
12 found a handful, 6 to 12 responses to what was at  
13 the time a request for additional information on  
14 some of the Appendix R questions that came up, and  
15 rather than a formal calculation document, they  
16 were simply assessed and responded to in the  
17 request for system mode.

18           What we determined was those really  
19 needed to be more formal in their response and  
20 from a calculation backing for the ~~F.M.A.R.~~ FSAR, so we  
21 did two things -- we are doing two things on that.

22           First, we are going to evaluate the

1 technical adequacy of the response that was given  
2 and then convert them into formal design packaging  
3 that can be incorporated in ~~F.M.A.R.~~ FSAR So the one  
4 piece of that is to confirm the technical adequacy  
5 was flagged as was required to be done prior to  
6 restart.

7           And then a complete procedure  
8 upgrade. We have a procedure upgrade project  
9 under way on our series control room station,  
10 first for those safe shutdown procedures, and that  
11 project we said needed to be completed prior to  
12 restart. And then of course there were procedural  
13 changes as a result of the framatome procedure  
14 upgrade. Then we need to retrain the operators in  
15 those procedures prior to restarting the unit.

16           And other things that we identified  
17 that do need to be done, but not necessarily prior  
18 to restart, is to revise, based on these analyses  
19 and stuff that actually goes in, and do the  
20 revisions necessary to the fire hazard analysis  
21 report.

22           So these are the things that came



1 out of the Appendix R.

2 MR. GROBE: When do you expect the analyses  
3 and calculation validations to be done?

4 MR. SCHRAUDER: I believe that date is -- we  
5 said we would have to be done, Jack, and ready for  
6 it to come back the first week or so of July.

7 MR. POWERS: We are expecting an analysis  
8 report by the end of this month on one or two  
9 incorporated, additional two weeks to get ready,  
10 first week of July.

11 MR. GROBE: Thank you.

12 MR. SCHRAUDER: So what did we learn from  
13 the topical area reviews? We believe that they  
14 did confirm, or they did confirm the fundamental  
15 adequacies of programs. We didn't find any  
16 systemic or programmatic flaws with how we set  
17 those individual programs up, and they were  
18 adequate to support operation.

19 Again, that is not to say we didn't  
20 find discrepancies or issues in each of the areas  
21 that required remediation prior to restart. We  
22 did, and we went through those, and where it was

1 warranted we did extent of conditions for those  
2 issues that came out of those reviews.

3         We have appropriately dispositioned  
4 those outcoming issues as either restart or  
5 enhancements that can be done post restart.

6         And unless there is some specific  
7 questions on the -- Marty, I know you have copies  
8 of the reviews, if you have completed your reviews  
9 or not, but that's where we are at in the topical  
10 reviews. Again, each had some issues and each are  
11 being resolved and they are all entered into the  
12 corrective action program and being tracked there  
13 as either required for restart or post restart.

14       MR. FARBER: I've got a question that's a  
15 little broader than what we have been dealing  
16 with. A lot of the work that's being done,  
17 especially in the area of calculations are  
18 calculations that you have sent off to be done by  
19 outside agencies which have to have owner  
20 acceptance review. I'm also aware that Kevin  
21 Coin's inspection found a problem with the work  
22 that was done by a vendor for the sump mode, and

1 my question is, has that caused you to examine  
2 your owner acceptance reviews and ensure that they  
3 are sufficiently robust to guarantee adequacy in  
4 the calc that you have?

5 MR. POWERS: The answer to that, Marty, is  
6 yes. To us that was a significant concern that  
7 Kevin brought to our attention. There is a couple  
8 of aspects to it. At the time that the  
9 calculation was prepared by one of our suppliers,  
10 we had a -- the owner's acceptance process was to  
11 review calculations. But subsequent to that we  
12 revised our calculation process. We have a much  
13 more complete checklist now that is provided to  
14 the engineers, and what attributes to check in the  
15 calculation.

16 So in the interim there has been  
17 some improvements in the program itself on how  
18 calculations are checked. Also, we are looking  
19 very closely at the modifications that we have  
20 performed at the site during the course of this  
21 outage where we have had them rolled up into a  
22 final package, the package is near complete, and

1 the final package has all the reviews and  
2 programmatic requirements and documents, what's  
3 been done in the field that provides the basis for  
4 it, as well as -- and formalizes that package.

5         The review process that we are  
6 doing for that are being looked at very carefully  
7 for two of our other modifications that were  
8 performed by a supplier. To ensure that we did  
9 very rigorous review, we are also engaging our  
10 engineering assessment, more specifically in the  
11 area of calculations, because the significant  
12 point from Kevin's findings was fidelity of the  
13 configuration that was assessed in the  
14 calculation.

15         That was issued in the final design  
16 package, there was a difference there that should  
17 not have existed, and so we are looking  
18 specifically now at the configuration that is  
19 described in the topical, does it match rigorously  
20 the modification package. There is a number of  
21 things that we are doing to look into detail  
22 there.

1 MR. FARBER: Are you taking a backward look  
2 at calculations that were approved prior to your  
3 implementation of the improvements?

4 MR. POWERS: Yeah. And we have looked at --  
5 in fact, our engineering assessment board looked  
6 at calculations during one of the past assessments  
7 we have recently done, and engineering restart  
8 readiness assessments were done by corporate level  
9 composite EAP.

10 One of the things that they looked  
11 at was quality of calculations, and the general  
12 finding was that they were improving. And so we  
13 are looking at the specific one, although we are  
14 doing extent of conditions, we are looking at  
15 specific circumstances around this.

16 One more extent of condition, you  
17 don't see a large extent of condition problems and  
18 owner acceptance, yet, in fact, I've got to tell  
19 you, I sat in an office yesterday evening with  
20 design engineers, engineering manager's office  
21 with some of the engineers voicing dissatisfaction  
22 with the performance of the -- some of the

1 contractors who were performing calculations for  
2 them, unrelated, but, you know, the individual  
3 engineer had a copy of the calculation all marked  
4 up and red with comments all the way through it,  
5 and all the changes in the numbers at the  
6 beginning carries through an analysis, you know,  
7 the ownership there is quite hot.

8         Now, what we need to do is ensure  
9 that kind of ownership is consistent, because  
10 there is a large amount of work that is coming to  
11 finalization here at the site as we finish up some  
12 of the major projects we have done. So we want to  
13 ensure that we are checking carefully all the  
14 technical products that come to us to make sure we  
15 have got that ownership, so I hope that answers  
16 your question.

17     MR. FARBER: Thank you.

18     MR. SCHRAUDER: I hope that answers your  
19 question from yesterday too. Jack asked us the  
20 same question yesterday.

21     MR. GROBE: I have another question on the  
22 -- how many significant conditions adverse to

1 quality or root causes in the engineering analyses  
2 and calculation area exist, wherein the root cause  
3 or extent of condition has not been completed?

4 MR. POWERS: I would -- well, I don't have a  
5 specific number for you, Jack. We have had about  
6 -- I would want to characterize as many as 26 in  
7 root cause CRs, particularly in the design area.  
8 Of those, I think virtually all have been gone  
9 through the process of investigation, the  
10 initiation of corrective actions, and we have got  
11 a real gauntlet that these run, so once they're  
12 prepared, they go through the supervisor of  
13 management review before the corrective action  
14 review board for comments. We also have condition  
15 report and lists and root causes. We have CRs,  
16 and specifically manned individuals to look at  
17 them, and ultimately once they've cleared all  
18 their hurdles, they go to SMT for acceptance and  
19 vice-president's signature.

20 So there is a number of them that  
21 are moving through that process, and I can't give  
22 you a number about how many are currently

1 outstanding. I would say in the ballpark of eight  
2 to ten as an estimate.

3 MR. GROBE: But the root causes have all  
4 been completed. What you are saying is they are  
5 somewhere in the process of being reviewed and  
6 approved?

7 MR. POWERS: Yep, that is correct. And with  
8 the exception of the one we just talked about and  
9 the emergency sump, we are currently doing that  
10 root cause right now for our internal suppliers  
11 for their internal corrective action, which they  
12 have given us copies of.

13 MR. GROBE: Jim, could you give me a list of  
14 the CRs that were characterized as SR in the  
15 design area and what is the status on those?

16 MR. POWERS: All the significant CRs on  
17 design?

18 MR. GROBE: Yes.

19 MR. SCHRAUDER: The next slide we have just  
20 summarizes what we say about the design. The  
21 safety functions have been confirmed for a number  
22 of the systems. We have ongoing activities which



1 we expect to conclude in a confirmation of an  
2 operability and operability of performance, their  
3 safety functions, and there are going to be, I'd  
4 say, one or two for these exclude the impact of  
5 electrical distribution, but we will have one or  
6 two systems, as we have described here, that will  
7 have been declared tech spec inoperable as a  
8 result of our reviews.

9           And, again, even on a couple of  
10 those, even though we would show they were tech  
11 spec inoperable, we believe they would have  
12 performed their safety function, may have just  
13 been later down the road that they achieved that  
14 function.

15           With that, unless there are  
16 additional questions, I will turn it over to Jim  
17 Powers.

18   MR. POWERS: Thanks, Bob. What I'd like to  
19 cover this afternoon is the remaining design  
20 issues, and we have touched on these in the course  
21 of the discussion, but I will provide what further  
22 information I can on them.

1           What we are doing with the  
2 remaining design issues is assure that safety  
3 issues are resolved, the tech spec operability is  
4 met, and the systems' structures and components  
5 will perform their safety function.

6     MR. GROBE: Before you go on, I was thinking  
7 about what you just said, Bob, and I appreciate at  
8 this point that you have reviewed, but not have  
9 concluded when you finish all your analyses that  
10 there were non-functional systems, but --

11    MR. SCHRAUDER: HPI we know is going to be  
12 an exception to that.

13    MR. GROBE: So HPI was non-functional?

14    MR. SCHRAUDER: Right. RCS will be  
15 inoperable, but would have performed its function.  
16 Steam and feed water rupture control system will  
17 be inoperable. That's the one that would have  
18 functioned, it would have been within a second or  
19 two later than currently analyzed.

20    MR. GROBE: Okay. The point I was going to  
21 make is that many of these analyses are in various  
22 stages of being completed, and internally they are

1 far enough along that you feel comfortable that  
 2 they are not far enough along that we can evaluate  
 3 them.

4           Part of the corrective action team  
 5 inspection scope was a number of these issues, and  
 6 I believe that team will be back for one week  
 7 later this month, and then maybe one or two weeks  
 8 sometime during the summer. Once you finish all  
 9 the analyses and we can get a better sample of  
 10 engineering corrective actions to look at, so I  
 11 understand and accept your statements and your  
 12 conclusions, but we don't have a capability yet to  
 13 provide assessment of that.

14   MR. SCHRAUDER: I understand that, Jack

15   MR. POWERS: What I'd like to reiterate when  
 16 we talk about some of the remaining design issues  
 17 I'm going to discuss is the volume of design  
 18 information that was reviewed over the course of  
 19 the last year at the site. Our latent issues  
 20 reviews and system health readiness reviews were  
 21 structured after some of the developments and  
 22 insights that were gained at several other sites

1 and went through recovery processes as well as  
2 were staffed with people who had participated in  
3 those recoveries and have gone through design  
4 process reviews.

5           So we felt we had a very thorough  
6 investigation performed, and as Bob described, we  
7 have several issues that are tough to resolve,  
8 several systems that with operability that is in  
9 question, with the vast majority of the design  
10 basis was found to pass the scrutiny and be  
11 adequate to support operability.

12           The four topics I'd like to touch  
13 on this afternoon are high pressure injection  
14 pumps and the particulates from the sump, and I  
15 will go over that briefly for those who weren't  
16 sitting in on the recent public meetings  
17 discussions in that regard.

18           The electrical distribution system,  
19 I will just touch on that, and our air-operated  
20 valve program and emergency diesel generator  
21 loading. So as you can see, we discussed many of  
22 those, and these are what we consider our

1 remaining top issues, each of which is resolvable.

2           The high pressure injection pump on  
3 Slide 26 for those of you in the audience who have  
4 the slide package in front of you, you can see a  
5 photograph of the pump. The pump is contained  
6 within a cylindrical enclosure, and the pressure  
7 boundary is a multi-stage pump that's within  
8 there. And the issue is that at the end of the  
9 pump facing at the end, we can see in the  
10 photograph there is a hydrostatic bearing that  
11 supports a rotating shaft, and there is water that  
12 comes from one of the internal stages and powers  
13 that hydrostatic bearing.

14           And it -- the water, since it comes  
15 from the pump, may contain any debris such as grit  
16 that may be coming in the latter stages of  
17 accident function of the pump from the emergency  
18 sump, and there is -- can be grit and other fine  
19 debris during that time, and it can potentially  
20 cause damage to that bearing. And we say  
21 potentially, because we have got a number of  
22 equipment experts evaluating this pump for us, and

1 it's not clear that the pump would be damaged, but  
2 we do have a concern about it.

3           We describe two options that we are  
4 currently pursuing and evaluating to resolve the  
5 issue, one of which is to modify and test the  
6 existing pumps to ensure their operability with  
7 any debris in the pump. And the second option  
8 would be to install new pumps and motors, and we  
9 have gone out into the industry and found two  
10 suitable pumps and motors that we can modify and  
11 install in the plant in replacement of these  
12 pumps.

13           Currently we are evaluating those  
14 two options to determine what the right thing is  
15 to do for the plant, and we will be making a  
16 decision as we move forward in time over the next  
17 several weeks based on results from testing at the  
18 site, as well as continued engineering  
19 developments with the replacement pump option.

20           We will come to a decision and, of  
21 course, inform you at that time of what that  
22 course will be. We believe either option will

1 provide satisfactory pumps for the application at  
2 the site.

3 MR. FARBER: Jim, I'm curious how would you  
4 propose to test the numbers for the capability to  
5 pass debris?

6 MR. POWERS: The testing program is --  
7 consists of several different aspects, Marty. In  
8 a laboratory setting we plan to test small screens  
9 that would be modifying the multiples to put into  
10 the filter, the flow going to the bearings and  
11 demonstrate that as we pump a mixture of debris  
12 that we'd expect that there would be containment  
13 through there in the test facility, that the  
14 screens would be self-cleaning, would not clog.

15 So we'd demonstrate that by testing  
16 the results. Our concerns will be wearing in the  
17 pump that -- of the rotating element's run-on, we  
18 would be testing those in a test mock-up with  
19 debris to determine wear rates on the wear rings,  
20 and how much wear we expect during the emission  
21 time of the pump.

22 Once we have done those two tests,

1 we will be taking the resultant wear and preparing  
2 wear rings to put in the pump in the plant and  
3 actually test it with that amount of wear to  
4 demonstrate it works.

5           And so we believe with a  
6 combination of laboratory testing and actual  
7 testing in the plant that we will be able to  
8 demonstrate each of the technical issues  
9 satisfactorily, that the pump will work.

10           And the other thing we are looking  
11 at to do is open up on wear rings, for example,  
12 and the functioning of the hydrostatic bearing.  
13 One of the issues that our technical staff has is  
14 whether the rotation and resultant vibration of  
15 the pump could be affected. We expect to do the  
16 test in the near term, within the next several  
17 weeks at the site with an existing pump that will  
18 be installed, and as you see, that should answer  
19 quite a bit of questions in terms of the analysis  
20 that's been done going to characterize the roto  
21 demand characteristics of the pump versus the  
22 actual field performance of the pump. We have a



1 surveillance test we do, we will run the pumps  
2 through a regime that will demonstrate how  
3 susceptible they are to clearance opening up and  
4 stability, what is the natural frequency of the  
5 pump relative to its operating speed.

6           And the analyses that we have done  
7 have indicated that it's relatively close, that's  
8 why the engineers have a concern of this, but we  
9 believe that the field testing with a number of  
10 factors that will affect that type of analysis of  
11 the pumps, sometimes the analysis is not as  
12 accurate as it can be without demonstration of  
13 benchmark of actual performance in the actual  
14 equipment.

15           And Bob Coward is with us from MPR  
16 today, and Bob is actually heading up the team at  
17 MPR that is looking at this option, so, Bob, is  
18 there anything else that --

19       MR. COWARD: I think you did it pretty well,  
20 Jim, unless there is any other specific questions  
21 we can answer. I think Jim explained it fairly  
22 well, and that is through a combination of, you

1 know, laboratory testing, as well as some testing  
2 in the plant with additional analyses. We are  
3 pretty confident we will show the pumps will be  
4 acceptable when you get down to relatively minor  
5 modifications that need to be made to install the  
6 strainers.

7 MR. POWERS: And we will present to you the  
8 details on those analyses and tests later, and  
9 your staff can review on extent of condition  
10 standpoint.

11 We also looked at our low pressure  
12 injection pumps, Bob had mentioned earlier they  
13 have cyclone separators in the injection flow that  
14 goes to the mechanical seals, so this -- in this  
15 case we were not talking hydrostatic bearing, but  
16 mechanical screens on the pump. The screens have  
17 a close running tolerance for debris getting into  
18 -- between the seal and rotating shaft is  
19 minimized, and, in fact, they're fairly hardened  
20 against debris getting into it, but there is a  
21 concern with the amount of debris that could --  
22 cooling water could be blocked, the seal may not

1 perform well, and leakage may come from the pump.

2           And so, as I mentioned earlier, we  
3 are ordering a replacement cyclone separator,  
4 which is a small component readily available for  
5 the ~~LMT~~ LPI pumps, and that is currently being  
6 prepared for delivery to the site.

7           We are also reviewing our  
8 containment spray pumps which is a similar  
9 mechanical steel. They do not have a cyclone  
10 separator, they were initially specified to be  
11 capable of pumping quarter-inch diameter debris in  
12 the original specifications for the equipment, and  
13 based on what we learned on the LPI pumps, we are  
14 looking at those mechanical seals as well on those  
15 pumps to assure that we feel that they are sound  
16 for the application.

17           So extent of condition, all the  
18 pumps that are taking pumpages from the emergency  
19 sump were being reviewed.

20           The next topic I'd like to discuss  
21 is the electrical distribution system. In the  
22 earlier discussions, Jack, one of the things you

1 had brought up was past generic communication and  
2 our response on the electrical distribution  
3 concern at Davis-Besse.

4           The site received those generic  
5 letter correspondence and answered them. Many of  
6 us who were involved at that time, it's something  
7 we will be going back to evaluate, but the  
8 analysis of record at the time was based on the  
9 electrical load management system, which was used  
10 in the original design construction of the plant.  
11 And that design basis analysis was used to answer  
12 those questions on relaying and coordination and  
13 voltage.

14           What we are dealing with today is  
15 an update of the analysis, making sure all of the  
16 loads have been integrated into the analyses, and  
17 we get an up-to-date run, and I think we need to  
18 await the results of that run and find out the  
19 status of the system.

20           So the resolution of the issue was  
21 to revalidate input analysis. We have got a team  
22 looking very carefully to make sure all the

1 understanding of the motor's characteristics have  
2 been factored into the analysis using the latest  
3 industry software, which is validating the results  
4 to ensure electrical distribution meets its safety  
5 function.

6           And that is ongoing with a plan to  
7 support initially our mode change for the pressure  
8 testing. We talked about a mid June time frame  
9 for having that available, hoping maybe earlier  
10 because we have applied a number of electrical  
11 engineers to the project.

12           We have changed the project  
13 structure somewhat at the site from what you may  
14 have -- those of you who have been there may have  
15 seen. We brought our electrical superintendent  
16 from the Menkins organization, Dave Hemmling, and  
17 assigned him to head up this project, manage this  
18 project. He was a previous ~~RSO~~ SRO at the site and is  
19 very well acquainted with the operation.

20           Training, for example, has been one  
21 of his jobs in the past, so there is good  
22 leadership. We have also bolstered the team

1 composition of electrical engineering supervision  
2 from Stone & Wester as well as several electrical  
3 engineers to help with the data input process.

4         We are hoping all the changes are  
5 accelerating and, again, we should start to see  
6 preliminary results this week. One of the pieces  
7 of the electrical distribution system we didn't  
8 touch on is the DC systems, ~~225~~ 125 and 250 DC. There  
9 are calculations being prepared there as well to  
10 upgrade the design basis in that system, and that  
11 is battery loading calculations and capacity fuse  
12 coordination calculations are going well. They  
13 are characterized as no problems with the system  
14 being found through that process, but the  
15 calculations are being prepared, for the record,  
16 so that the design basis is upgraded.

17     MR. PASSEHL: Just a question on that. Do  
18 you anticipate any modifications you are going to  
19 have to make to the plans a result of this  
20 electrical distribution problem?

21     MR. POWERS: There is none currently  
22 identified that we know of resulting from this

1 analysis. We are making some changes in the  
2 electrical distribution system. One of the issues  
3 that we had that we were actually doing  
4 modifications on this week is under voltage relay  
5 setpoints and setpoint tolerances associated with  
6 that.

7           We found that the installed relays  
8 did not have a setpoint tolerance capability that  
9 would match the need in the plant, and I think we  
10 need the tech spec requirement for that,  
11 particularly the nine we are checking the relays  
12 out to a different type, and that was really  
13 separate from this issue of low voltage, so the  
14 answer is no, we don't see any modifications yet.

15           I would hope I would be able to  
16 report in the next weekly status update to you  
17 what our status is on those preliminary results.

18   MR. GROBE: My flight was canceled Monday  
19 morning and I missed the ROP meeting, but I was  
20 reviewing the notes from that meeting on the plane  
21 coming back this morning, and it seemed to  
22 indicate in the discussion on this issue that

1 there may be some operability determinations that  
2 are made for Mode 4 different than the other  
3 modes?

4 MR. POWERS: Right.

5 MR. GROBE: Could you explain that a little  
6 bit?

7 MR. POWERS: The plan that we have to  
8 approach this problem is several stages, actually  
9 three stages, the first of which is to provide an  
10 operability determination basis to allow the mode  
11 change to Mode 4. And the reason for that is so  
12 we want to proceed to Mode 3 and do the pressure  
13 test of the plant that we have described. And  
14 that operability determination is based on the 70  
15 largest, most significant loads in the system  
16 being factored into the model and looking at the  
17 results of the models, providing engineering  
18 technical basis on that analysis to support the  
19 Mode 4 change.

20 Subsequent to that, the team is  
21 going to be continuing to factor and validate all  
22 loads on the system, as you get down into very



1 small loads, small motors and such, and all that  
2 is going to be factored in for the next  
3 operability determination, which would be to  
4 support the Mode 2 change.

5           So at that point we will have to  
6 look at the calculations completed with the loads  
7 validated, and subsequent to that, the third stage  
8 is the documentation of the total analysis, all  
9 calculations laid out, what we call all the road  
10 maps associated with it, and laid out for the  
11 engineers to encapture and record all the details  
12 provided in that. So it's three different levels  
13 that we've got laid out, Jack.

14       MR. GROBE: I will have to say, I don't  
15 understand what you just said, but I'm not sure I  
16 can understand it in this context, it's going to  
17 take some discussion. But even though you have --  
18 might have a small load on the system, when it  
19 comes to ~~breaking~~ breaker fuse coordination, it's really  
20 irrelevant if whatever isolates that small load is  
21 not properly coordinated, how can you conclude  
22 that 4160/480 volt systems are operable since if

1 you are not coordinated, you might have a higher  
2 level breaker open and take away a number of  
3 those?

4 MR. POWERS: Well, we think from the work we  
5 have done today, that the 70 loads that are being  
6 factored in are going to give us a good picture on  
7 the capability of the system, and, you know, we  
8 will get into details with the coordination.  
9 You're right, I'm going to have to get my  
10 electrical team to give a brief --

11 MR. GROBE: And they probably shouldn't talk  
12 to me, they should probably talk to Rob.

13 MR. POWERS: That's fine. We've got that  
14 laid out with logic and rationale, how we are  
15 going do this.

16 MR. GROBE: Again, I appreciate your logic  
17 for terminal voltage issues, but I don't  
18 understand breaker fuse coordinations, don't  
19 understand your logic, and Ron I'm sure can get  
20 into a lot more detail with you folks.

21 MR. LEIDICK: The impression is if we have a  
22 weak link in the system and understand where those

1 are and how those go down through, to approach it  
2 that way, and then if you identify where the weak  
3 links are, then you can press on with the rest of  
4 it. That's my understanding of the issues, but  
5 let us follow-up and get the right people together  
6 in conversation.

7 MR. GARDNER: Sure.

8 MR. POWERS: And some of the discussion we  
9 have had is with these initial runs, and not only  
10 give us the voltage distribution, but we will find  
11 a load flow, and that will factor into a sense of  
12 the breaker isolation qualifications coordination,  
13 so I believe that the engineers think that we will  
14 have a first cut at that from these initial  
15 70-load runs, Jack.

16 We will provide you with details on  
17 that and have a dialogue.

18 MR. GARDNER: Yeah, I'd like to have that.  
19 Usually you define your fault currents and plot  
20 your fault currents and breaker currents  
21 characteristics which are fixed based on the  
22 breaker type and fuse type and cable type, and you

1 take a look at what you've got, so it would be

2 interesting to have a dialogue.

3 MR. POWERS: Okay.

4 MS. LIPA: At what point -- I have a

5 question about process, and I want to make sure

6 I'm clear. It sounds like what you're talking

7 about is an operability evaluation for Modes 3 and

8 4.

9 MR. POWERS: Uh-huh.

10 MS. LIPA: So you have learned that you

11 would need a tech spec change that would be

12 allowed in the process.

13 MR. POWERS: We don't believe it would be a

14 tech spec change. At this time the plan was for

15 an operability determination.

16 MS. LIPA: For that 70 loads, that's all you

17 need to consider?

18 MR. POWERS: For the system, that would give

19 us an adequate sense of the system's performance

20 capability. We'd be able to determine what would

21 be operable.

22 MS. LIPA: That's all the equipment that's

1 required to be operable for Modes 3 and 4?

2 MR. POWERS: That's right, that's right.

3 Although I believe that analysis would be heading

4 towards all modes, it's not necessarily restricted

5 to those modes, so in that I will need to get more

6 detail to you on the structure of that operability

7 determination.

8 MR. GROBE: Now I'm confused. That was a

9 little different than what I thought I heard. The

10 smaller loads are loads that you don't need for

11 Modes 3 and 4, are those going to be isolated

12 then?

13 MR. POWERS: Not necessarily, Jack. The

14 loads that -- the 70 major loads are the biggest

15 loads that would affect the voltage of the system.

16 The smaller loads can -- perhaps would be needed

17 during Modes 3 and 4, but we are judging the

18 performance of the system based on the 70 biggest

19 loads which would affect the voltage the most.

20 MR. GROBE: That's what I understood you to

21 say earlier.

22 MR. POWERS: That's what I meant.

1 Any other questions with the  
2 electrical distribution system?

3 (No response.)

4 MR. POWERS: The next topic to discuss is  
5 air-operated valves. This was a program that was  
6 initiated during the course of the past year  
7 similar to the industry at many sites.

8 As an industry, we went through  
9 motor-operated valve programs where the design  
10 basis for the valve the in areas such as the  
11 pressure differential that they needed to function  
12 with as well as the electrical supply and voltage  
13 to the valves was detailed out in the design  
14 basis.

15 We are doing a similar program for  
16 our air-operated valves, determining the pressures  
17 they need to work against, as well as the  
18 pneumatic air supply conditions that they have and  
19 their actuator capabilities.

20 And there is a number of factors  
21 that go into this, not only air pressure that is  
22 available, but other things can become an issue,

1 and the overall functionality is assessed in great  
2 detail in design calculations, and 83 valves at  
3 the site were analyzed. These are our active,  
4 safety significant valves that were put in our  
5 program, similar to the issue initiatives  
6 consistent with those initiatives.

7         And as a result of the analysis  
8 that we went through, we found that there were 19  
9 valves that had negative margin, meaning the  
10 actuator -- based on the conditions that were  
11 defined in our analyses, the actuator would not  
12 have enough capability to ~~stroke~~ stroke the valve fully,  
13 at least with the margins that we feel are  
14 necessary to be satisfactory. And so as a  
15 consequence, during the current outage, there was  
16 seven valves that we are adjusting prior to  
17 restart, and there is 12 valves that are going to  
18 be modified.

19         And modifications consist of things  
20 like stronger springs within the valve, multi-port  
21 solenoid valves that pour the air more effectively  
22 to and from the actuator. And probably there is

1 one valve that -- which I would describe is the  
2 most significant valve, which is the makeup 3  
3 valve, which is part of the makeup let down line.  
4 it's a containment isolation valve. On that one  
5 we are upgrading both the actuator and the valve  
6 body itself. And that modification is ongoing  
7 now. The actuator is being manufactured, we have  
8 a valve body at the site. We expect all that work  
9 to come to fruition on the 24th of this month. So  
10 it's very active, and we are in the process now of  
11 issuing design packages to the maintenance staff  
12 at the site to make these valve modifications.

13       There are ten valves in the  
14 population that we feel we want to increase margin  
15 to. We had our program criteria, and this is  
16 margin above the -- with a minimum required to do  
17 the safety function, and that currently the plan  
18 is restart activity, and then 54 of the valves  
19 demonstrated sufficient margin.

20     MR. GARDNER: When we are talking about  
21 margin increase, are we talking about that there  
22 is uncertainty that the air-operated valve would



1 function, or that there is a feeling that its  
2 timing would be affected, and the timing of the  
3 function may be delayed, is it not working at all,  
4 or is it just that it will function, but it may  
5 not function at the time that was estimated?

6 MR. POWERS: It would be the latter. It  
7 would function, but there were concerns about the  
8 timing as well as I think in the industry in these  
9 programs there is margin that accounts for changes  
10 in friction and to provide further margin above  
11 the minimum to ensure it would work. So the  
12 timing of the function, how quickly it would  
13 function would be the way I'd characterize it.

14 MR. GARDNER: These affect numerous systems,  
15 right, important systems I assume also are part of  
16 numerous systems, including important systems?

17 MR. POWERS: Right. They are, as Bob  
18 described this, there is several of them that are  
19 involved in the component cooling water system,  
20 and those can connect component cooling water, but  
21 also air flow to the heat exchangers so the heat  
22 system is involved. These are the ones where we

1 have calculations that have been prepared, and we  
2 believe that they will demonstrate adequate  
3 margin.

4 MR. GARDNER: Okay.

5 MR. POWERS: Several hours are in different  
6 systems containment isolation valve, for example,  
7 that need to be have their actuators upgraded.

8 MR. GARDNER: I guess my point is that in  
9 the -- previously I think you mentioned that in  
10 other areas margin has been reduced, that's been  
11 something that you have noticed throughout the  
12 ~~plan~~ plant, that margin has been reduced, but typically  
13 things tend to function okay, even with the  
14 reduced margin. That is something we are looking  
15 at on a system basis as the cumulative affect on  
16 reduced margins, to see it as an AOV margin which  
17 is minor, but it's less than desired, but  
18 acceptable, it doesn't interact or contribute  
19 synergistically to other margins that have been  
20 affected, such that the system overall is being  
21 negatively affected?

22 MR. POWERS: I would say in each case the

1 margins that are built into the programs, the  
2 codes that are used to design the systems  
3 encompass, you know, the synergistic or collective  
4 affect that you have by changing -- if you need  
5 the code allowance for the system, the margin is  
6 already built into that, such that even meeting  
7 the code allowable without excess margin, you have  
8 already inherently built in capability.

9       The same thing would be the case  
10 with these AOVs. When you meet program margins,  
11 we have inherently built in additional margins, so  
12 I think on -- in the sum total we have got margin  
13 in the plant for that type of consideration.

14     MR. HILLS: The margin you are talking about  
15 as far as the ten valves you are going to increase  
16 the margin to meet the program requirement, does  
17 that mean the valves then as they exist today have  
18 enough margin to meet all licensing basis of  
19 N.R.C. commitments?

20     MR. POWERS: Yes.

21     MS. PEDERSON: On the 19 valves that had  
22 negative margin, have we covered each of those in

1 the previous discussions as far as impacts, or are  
2 there some others that we haven't talked impacts  
3 yet?

4 MR. POWERS: There is others that we haven't  
5 talked impacts. Several of them are isolated --  
6 containment isolation valve locations. For  
7 example, there is containment isolation valves,  
8 those actuators needed to be upgraded. There is a  
9 valve that is a reactor cooling on the pump seal  
10 return containment isolation valve, there are 12  
11 valves that are isolation valves, steam generator  
12 system, and there is also temperature control  
13 valves for return piping which will perform  
14 isolation valve function. And each of these, as  
15 we have determined, there is an operability issue  
16 with them. We have been issuing LERs. There is  
17 several of the valves that have been documented.  
18 In fact, one of the commitments that we had early  
19 on last year, based on several AOVs that we found  
20 fell short of the requirements. We have committed  
21 to complete this program prior to restart.

22 MS. PEDERSON: Have you finished your

1 reviews such that we have all the LERs we had  
2 expected to see from AOV reviews, or are there  
3 still some ongoing?

4 MR. POWERS: I believe we have documented  
5 them all in LERs, but I'd have to ask engineering  
6 one more time to be sure. The list that I have  
7 described here is, as we know the scope we have  
8 done the calculations, but I want to make sure  
9 we've got it thoroughly documented with LERs where  
10 necessary.

11 MS. LIPA: On the AOVs, have you shared what  
12 you learned here with your other FENOC sites and  
13 have confidence that there is also not problems at  
14 other FENOC sites?

15 MR. POWERS: I believe we have shared it  
16 with the other FENOC sites. I know our AOV -- in  
17 fact, Kenny came from our ~~Gary~~ Perry site to work at  
18 Davis-Besse several years ago, so there is a  
19 pretty strong link with the engineering system  
20 between the two sites, and also sharing of  
21 information similar to the AOV areas,  
22 motor-operated valves area, but I will go and

1 check on that one too to make sure we have got a  
2 dialogue going. I'll make sure it's strong.

3 MS. LIPA: Okay. Thank you.

4 MR. PASSEHL: I had a question on the  
5 adjustment to the seven valves you mentioned. I  
6 guess, are you waiting on plant condition to do  
7 that work, or I assume that is one of the  
8 significant work compared to modifying valves?

9 MR. POWERS: That's right. Given the  
10 priorities at this point are to ensure that valves  
11 can work once adjusted with its increasing to the  
12 program, the program standard, you know,  
13 expectations for margin, and the engineers right  
14 now are focused on modifications that are required  
15 and adjustments that are required to perform  
16 safety function. And following that they will go  
17 through the next set of increasing margin on those  
18 that need the full program to perform so the  
19 system conditions will dictate much of that.

20 MR. PASSEHL: Thank you.

21 MR. FARBER: Thank you, Jim. Most of what  
22 I'm hearing right now seems to focus on whether or

1 not the valve will perform a function under a  
 2 given condition, whether it's got enough thrust to  
 3 close against a flow or a ~~DM~~ DP. My question is, is  
 4 there anything in this program that's going to  
 5 address the other functionality requirements, for  
 6 example, of the back-up accumulators that provide  
 7 air for -- in this case nitrogen for the valves?

8 MR. POWERS: There is several valves that we  
 9 are increasing or augmenting the accumulator sizes  
 10 on, Marty, the service water 1356, 7 and 8 series  
 11 valves are -- there is a set of those. And there  
 12 is also the component cooling water valve we have  
 13 talked about, which will provide additional  
 14 accumulators there so the pneumatic supply is part  
 15 of the assessment.

16 MR. FARBER: Thank you.

17 MR. POWERS: We can move on to the next  
 18 topic. This topic we touched on earlier, the load  
 19 analysis for the engine was not updated, and when  
 20 we did our SFAS testing we recognized that we have  
 21 not met our license in particular for voltage  
 22 depth and time frame of the voltage dip as well as

1 frequency specifications that are included in the  
2 design standards that we adhere to.  
3       And as I described earlier we have  
4 prepared a detailed model of the diesel  
5 generators. We benchmarked that actual field test  
6 performance of the diesel generator voltage and  
7 frequency, and then we have used that model to  
8 predict overall engine response that would be  
9 given in the full accident loading and have taken  
10 the results and looked at all the supply loads to  
11 assure that they will perform their safety  
12 functions, and we found satisfactory results  
13 there, so there were no modifications required in  
14 the plant to address this issue.

15       Although, we talked earlier there  
16 are some improvements that we are looking to make  
17 in the future with the governor system and  
18 potentially the diesel generator output breaker  
19 from an extent of condition standpoint.  
20 Maintaining our analysis up-to-date was one of the  
21 lessons learned, significant lessons learned that  
22 we have taken from the past years activities at



1 the site. Our latent issues reviews and system  
2 health reviews pointed out similar to what was  
3 done.

4           And I will talk on the following  
5 topic, design base validation program that had  
6 been done and calculations maintenance are  
7 important. There had been a practice of many  
8 disciplines in the past at the plant, when small  
9 changes were made, do that assessment against an  
10 existing calculation for that change, document the  
11 assessment and move on.

12           The problem becomes, as time passes  
13 and several assessments are done, the cumulative  
14 affect needs to be assessed and incorporated into  
15 the calculations, so the engineering has a full  
16 picture on what the cumulative effects of changes  
17 have been, and in many areas that needed to be  
18 done. The diesel generator loading is an example.  
19 The electrical distribution system is an example.

20           Ken Byrd's area with the -- what we  
21 would call the safety and accident analysis for  
22 the plant, we have done substantial work and we

1 have talked about with you in the past for things  
2 leading from our ultimate load sink temperature,  
3 the plant's cooling system, all the way to  
4 containment performance, and many of our more  
5 safety significant calculations have been upgraded  
6 through this process to latest industry standards  
7 and latest design status of the plants.

8         And in Ken's area, he's has managed  
9 well to get -- the vast majority of his  
10 calculations have been completed in his area. The  
11 electrical area we are still working to complete  
12 those calcs, but from an extent of condition, the  
13 calculations and upgrade process has been very  
14 active at the site, and are progressing through  
15 the significant calcs.

16       MR. PASSEHL: I just want to be clear on one  
17 thing. Your diesel generator ventilation is not  
18 significantly undersized, although you are going  
19 to add margin, two additional fans; is that  
20 correct?

21       MR. POWERS: Well, not exactly. I wouldn't  
22 characterize it as not being undersized, it is

1 undersized and has been from the day that we  
2 evaluated. During the tornado of 1998 that struck  
3 the site and took the off-site power out of the  
4 system, the site operated on the diesel  
5 generators. The room temperature was high, and  
6 subsequent assessment of that led to concerns for  
7 the lifetime of some of the electrical components,  
8 particularly realized the cabinets in the rooms  
9 and temperature in the cabinets where the engines  
10 are running in the long-term, we do need to  
11 increase the ventilation to the room, we want to  
12 do it for the sake of the margin.

13           At the time this '98 assessment was  
14 done, that proceduralized a tracking of the amount  
15 of time that the room temperature was elevated and  
16 that factored toward a change out, so it was more  
17 of a lifetime -- qualified life issue than a  
18 operability issue as we are finalizing our  
19 assessment of that, that continues to today, that  
20 that is the technical characterization of that  
21 issue.

22           Nevertheless, there is three

1 modifications that we are currently pursuing for  
2 those rooms to increase margin. The first is  
3 insulating the exhaust manifolds on the engine,  
4 and that design package is nearing completion,  
5 should be issued this week. Insulation is on  
6 order for that that is going to cut the  
7 temperature in that room by a number of degrees.

8         The second one is providing  
9 ventilation ductwork to the control panels that  
10 house the electrical equipment to make sure the  
11 temperatures are minimized in those panels. That  
12 is important because in the testing of the site we  
13 identified 40 degree temperature rises in the  
14 outside panel to the inside of the panel. So it  
15 gets hot inside the panel, and simple, small  
16 ductwork changes can help alleviate that.

17         And then the third modification we  
18 are pursuing is installing additional large fans  
19 that we have secured from our Perry facility.  
20 These were nuclear safety grade fans that had been  
21 procured and installed for Unit 2 at that site,  
22 and are no longer necessary as Unit 2 has been

1 subsequently abandoned, so we have brought those  
2 to the vendor for refurbishment. That's where I'm  
3 going now for modification, to install those in  
4 the room, and the plan is to have those operate  
5 based on temperature thermostat, and as room  
6 temperature rises, the fans would kick on and  
7 provide additional air coming to the room. Once  
8 we have reached that stage, we think we will have  
9 good deal of margin in the capabilities, but as it  
10 is now the HVAC system does not have the margin it  
11 needs.

12 MR. GARDNER: Also, it sounds like the HVAC  
13 system would limit your options as far as going to  
14 a new, more sophisticated governor that might have  
15 solid state components.

16 MR. POWERS: Right.

17 MR. GARDNER: With the relay, the old  
18 analogue type has lots of forgiveness there on  
19 temperature, and with your weak link analysis I  
20 would say, you know, the relays might be the  
21 culprit or the most susceptible component. If you  
22 change to a new system, that could change

1 dramatically.

2 MR. POWERS: That's a good point, and  
3 another good reason why it's better to build  
4 margin into the plant, allows us more flexibility  
5 for the future and resolves the problem  
6 effectively rather than simply analyzing them. So  
7 that's where we are on this particular one.

8 So we have a lot of work we want to  
9 do in the emergency diesel generator rooms, and  
10 that is going to occur after the pressure test we  
11 currently have planned, and we refer to this as  
12 divisional outages. The diesel generator trainees  
13 go into the room and do maintenance on it, we are  
14 looking for everything down to the oil leaks to  
15 make sure that those have been resolved, the  
16 ventilation system is upgraded.

17 In the past weeks, we have also  
18 been moving towards doing a ~~ceding~~ coating project, went  
19 in the room to upgrade the ~~ceding~~ coating on the wall and  
20 floor to bring it up to high standards for the  
21 future, so there is quite a bit of work we want to  
22 do in the area to upgrade.

1 MR. PASSEHL: So the diesel generator, then,  
2 is -- as far as outside air temperature, you are  
3 operable up to 85 degrees from Motor 5 and 6?

4 MR. POWERS: That's right, currently  
5 operable to 85 degrees. Then we are pursuing new  
6 modifications that will allow that temperature to  
7 rise ultimately back up and actually beyond the  
8 license basis for the plant, which I think is 86  
9 degrees outside temperature.

10 So each one of the modifications  
11 have progressively more -- cover more margin up to  
12 full capability.

13 MR. PASSEHL: Thank you.

14 MR. POWERS: So in conclusion, on the  
15 remaining design issues, as we have discussed,  
16 they are -- given the amount of work we have done  
17 for review, these are four of the more significant  
18 issues that we are dealing with on the site, and  
19 resolving. Each one of them has a resolution path  
20 that's been defined and is doable, and so none of  
21 them are showstoppers, and we are working through  
22 them and the schedule supports our current restart

1 schedule that we have communicated.

2 MS. LIPA: I want to be sure -- I was  
3 expecting something on the SFAS relays that you --  
4 I don't know if that is a design issue, so -- but  
5 if you can give us an update.

6 MR. POWERS: That is one we didn't have on  
7 our list, however, because that issue is -- did  
8 not originate from the design analytical reviews  
9 that we have largely been discussing here. The  
10 issue that Christine has raised is with a relay  
11 population that drives our safety features  
12 actuation system. There is a population of  
13 approximately 250 relays that were changed out at  
14 the site at the beginning of the refueling outage  
15 in February of last year.

16 Subsequent to that, with the  
17 testing program that's been done at the site that  
18 identified failures of several of the relays on  
19 our root cause analysis and systemic condition  
20 corrective action program indicated that there was  
21 a manufacturing issue with some of the relays, and  
22 also the application of the relay for the voltage



1 and current that they were applied to was a  
2 problem. And subsequent to that, the original  
3 relays that we had removed from the system and we  
4 removed the relays because of their age, and we  
5 have seen several age-related failures.

6           We removed them, and they were --  
7 they have been held and are available and they are  
8 currently going through a testing program to  
9 determine their suitability to be reinstalled in  
10 the plant while we resolve and get another  
11 replacement relay manufactured for us.

12           Out of the population of 250  
13 relays, 150 of the ones that we removed passed the  
14 screening process testing program that we have  
15 got. 83 of them did not pass that initial  
16 screening and we are currently evaluating those  
17 now. We are also in contact with several other of  
18 our industry peer plants that have spare relays  
19 that they can give to us. And the bottom line is  
20 at this point we believe we have enough relays to  
21 reconstitute the system. And then parallel with  
22 that effort, we are talking with a manufacturer

1 about doing another production run of the relays  
2 for our site and several other sites that use  
3 them.

4           The issue was -- the reason the  
5 relay was changed out to a different type is the  
6 model number had been discontinued, and so a  
7 different type was developed to be manufactured  
8 and tested and dedicated for installation in the  
9 plants. We want the manufacturer to do another  
10 production run of the original relay that was  
11 intended for the plant. They are indicating their  
12 willingness to do that, and several other plants  
13 that use that type of relay would like to have  
14 additional spares manufactured as well.

15           So that is a program that we are  
16 looking at now and having dialogue with the  
17 manufacturer to have that in place. So technical  
18 basis for the reinstallation of the relays is also  
19 in preparation for the testing program criteria  
20 that's been applied it. And the reason I know  
21 it's the appropriate thing to do at this time is  
22 being prepared and documented, so that will be

1 available for review.

2 MR. RULAND: Jim, this is Bill Ruland at  
3 headquarters. I have a question about, I guess,  
4 the programmatic issues associated with some of  
5 these design issues you examined. For instance,  
6 the emergency diesel generator loading issue,  
7 there is a question about the program going  
8 forward, how you intend to monitor and update  
9 loading going into the future? And if you examine  
10 these issues on that level, a number of them have  
11 programmatic implications, and I didn't see that  
12 come out very strongly in your slides, and I  
13 suspect you are addressing those, those  
14 programmatic long-term issues, could you talk  
15 about that a little bit, how that is being  
16 covered?

17 MR. POWERS: Sure. We have done some  
18 significant upgrades to the calculation control  
19 program, for example, in the program how we  
20 maintain calculations and how we revise them, what  
21 the criteria is for revision, and much tighter  
22 controls applied to changes within the plant and

1 how calculations are updated. One of the things  
2 that we found when we came on-site last year is  
3 the calculations at the site were essentially  
4 under the control of the disciplines in their  
5 areas, on the floor, available file cabinets, but  
6 we hadn't gone the extra step at our Davis-Besse  
7 site of coming up with an electronic calculation  
8 index, for example, and centralized control for  
9 document control function of the calculations, and  
10 so we are moving towards that now. So overall the  
11 program for control of calculations both  
12 procedurally, and just the physical control and  
13 accessibility is being upgraded at the site, and  
14 so there is a number of program improvements that  
15 are being made in this area.

16 MR. LEIDICK: I might add that at the other  
17 two stations it's being done as well. We are  
18 looking at that across the organization, the NOPs,  
19 operating procedures for the design area are  
20 really a top priority of ours, so we are getting  
21 those in good shape at all three plants.

22 MR. RULAND: Thank you.

1 MR. FARBER: Jim, you have spent a lot of  
2 time discussing the foremost significant issues  
3 that face you prior to restart, but do you have  
4 some sense that you could give us of the  
5 population of lesser tier significance issues that  
6 need to be resolved before start-up?

7 MR. POWERS: Well, there is a number of  
8 smaller tier issues that we are working through.  
9 As Bob described, it would be -- a number of  
10 condition reports have been issued over the past  
11 year. Each of those is being resolved and  
12 corrective actions being prepared. I would say  
13 out of the range of the 1,200 condition reports  
14 that have been issued, there may remain less than  
15 50 overall between various engineering and  
16 technical organizations that remain to be done,  
17 and we are working off corrective actions, and  
18 when we talk about our performance indicators, we  
19 work off of what we refer to as bulk work.

20 But there are selected technical  
21 issues that we are working through that are below  
22 the level of these four that we feel are bounded

1 by the schedule for these four, and those are  
2 tracked both on a top priority list, engineer top  
3 20 list, for example, at the site has just come  
4 up, are evaluated and then subsequently  
5 resolutions are identified. They drop down the  
6 list, and we have made a significant change to the  
7 site probably since the last time you were there,  
8 Marty, in terms of how we are controlling the  
9 work. We have been working from a corrective  
10 action program, essentially working through the  
11 lists of issues, working with a schedule.  
12         Corrective action program applies  
13 to get issues done as we worked off the bulk  
14 original number, first identification of issues in  
15 discovery and investigation and working off  
16 resolutions to the issues. At this stage we are  
17 coming out of the forest and being able to see  
18 individual trees. And so the engineering top 20  
19 list, the modification lists are now prepared, and  
20 we have assigned Mike Foss at the site, who is one  
21 of our directors at the site. He has been  
22 assigned as restart director, and one of his

1 primary functions is to help in the driving of  
2 these issues. And if you were to visit now, the  
3 conference room 209-210 out in the front building,  
4 which we refer to now as the plant support center,  
5 that room has been converted into a command center  
6 where all the various engineering issues that were  
7 reviewed everyday, we have review meetings about  
8 the issue with owners, they are required to have  
9 fragments, lay out the resolution. The issue  
10 management team provides some questioning on  
11 considerations that they have got, they are there  
12 prepared to answer the questions about the issues,  
13 that the issue is going to be successfully  
14 resolved on a timely basis.

15         So at this stage of the recovery,  
16 the change in our management to being much more  
17 focused on individual issues. While there were  
18 many of them, each one now is being brought in and  
19 focused on by the management team to assure that  
20 we are driving to completion, so that is helping  
21 us through that process.

22     MR. FARBER: Thank you.

1 MR. POWERS: The conclusions on the  
2 remaining design issues, as I just discussed, the  
3 resolution is being addressed by the corrective  
4 action program to ensure safe, reliable operation.  
5 And we are moving through that process now. Our  
6 work-off curves and progression at the plant  
7 continues to move us towards the upcoming mode  
8 changes.

9 The next topic I'd like to move  
10 into, and if I move through this quickly, is  
11 questions that you had on our 50.54(f) letter  
12 response. And this was in 1997 that the request  
13 was issued by the commission to describe the  
14 health essentially of the design basis at the  
15 plant, and each plant -- Davis-Besse was one that  
16 was required to respond on how that design basis  
17 was promulgated into the procedures that operate,  
18 surveil and maintain the plant.

19 And so at the time that that  
20 response was made, the assessments were done that  
21 -- on the status of calculations, and that  
22 response credited calculation improvements program



1 and system description development projects that  
2 were done in the mid-80s, during the mid-1980 term  
3 out at the site, and there was a lot of  
4 engineering activities at that time, and a lot of  
5 that was captured in system design descriptions  
6 and in calculations that were prepared.

7           And so we knew that work had been  
8 done. The results, though, in the assessment  
9 specifically excluded several topical areas due to  
10 previous assessments and inspections that had been  
11 performed. And these were areas that -- some of  
12 the areas that we have talked about, environmental  
13 qualification, high energy line breaks, seismic  
14 analysis and flooding. And the reason that those  
15 weren't looked into in great detail is because  
16 work had been done, inspection work or internal  
17 oversight self-assessments, a lot of it was  
18 believed that those areas had been surveilled in  
19 detail.

20           And we also committed as part of  
21 this 50.54(f) to initiate a design basis  
22 validation program because we knew were weaknesses

1 in calculations of assessments that had been done  
2 by your organization and ours. And that program  
3 was initiated.

4           So the program was worked through,  
5 the calculation basis for the maintenance rule  
6 risk significance systems was evaluated. I think  
7 we were in the range of issues that were -- with  
8 questions that were raised and documented on that,  
9 and that was -- open items were captured for  
10 disposition in various programs, corrective action  
11 program, corrective action tracking system and the  
12 Davis-Besse validation program tracking database,  
13 which was referred to in our request for  
14 assistance.

15           So based on the level of the  
16 issues, significance of the issues, it may have  
17 initiated a condition report or just a tracking  
18 item within the corrective action catch system.  
19 That is something that ought to be done,  
20 calculation needed to be clarified or updated, but  
21 there was not a high level of significance, safety  
22 significance to that action. So that was the

1 approach to this.

2           Now, as we went back and evaluated  
3 over the past year where we stood with the  
4 responses, we found out we did not follow through  
5 on a timely basis for completion of those open  
6 items for calculation update through to priority,  
7 and, in fact, that is something we had  
8 communicated in one of our follow-up letters to  
9 the staff.

10           But in the beginning of this year,  
11 we found that there was still open items that had  
12 not been done, so that they were languishing in  
13 terms of priority.

14           Subsequently we got into the latent  
15 issues reviews, our system health reviews, safety  
16 function validation project reviews, all of those  
17 projects would be as described, found similar  
18 weaknesses in design basis calculations, and we  
19 have upgraded a number of those calculations, and  
20 in particular, you know, I described earlier Ken  
21 Byrd's accident analysis area, we have done a lot  
22 of global calculations for the various systems and

1 heat load calculations and performance  
2 calculations, and we found that, yes, all this  
3 work is kind of revalidated, that there were  
4 weaknesses in calculations. Largely the systems  
5 have been demonstrated to be nonoperable through  
6 our assessments of all the additional issues that  
7 have been raised and were adequate to support  
8 operability.

9         We did find a couple of areas, as  
10 Bob described, where there were detailed issues of  
11 operability, but given the ~~devisiveness~~ decisiveness of what we  
12 have done over the past year, we have dedicated  
13 teams of individuals, well-experienced individuals  
14 going through the systems. We feel that on total,  
15 what we have done essentially validated the  
16 statements we made in terms of the adequacy of the  
17 design basis to support operability of the  
18 50.54(f) letter.

19         Notwithstanding that, we also feel  
20 that we need to do a supplemental response to the  
21 letter to describe what we have done over the past  
22 year, document what was found and how it relates

1 to the original findings and the design area plan.  
2 So that is one of the plans that we have had in  
3 our regulatory affairs section, to go through the  
4 process of rolling up and reporting what we found  
5 in the past year relating to our 50.54(f) letter  
6 response in the mid-90s. And we feel that all the  
7 work that we are doing in the design area to  
8 upgrade and -- surveil and upgrade our design  
9 basis to the plant is going to move us forward  
10 quite a bit in the quality of the adequacy of our  
11 design basis for information.

12 Are there any questions on that  
13 50.54(f) letter?

14 MR. RULAND: This is Bill Ruland at  
15 headquarters. I guess I didn't hear how the open  
16 items system remain, that you actually didn't  
17 complete all of the items that were opened?

18 MR. BYRD: All of the open items were put  
19 into the corrective action program as ~~conditional~~ condition  
20 reports, and so all of those condition reports  
21 have been categorized and -- with any other  
22 condition report, so every open item that is

1 categorized as required for restart will be  
2 complete by the appropriate mode for restart.

3           So at this point I don't have any  
4 exact number, but obviously the majority of the  
5 things that would be required for Mode 4 have been  
6 completed. Some things were categorized as  
7 enhancement and others were not. Other items were  
8 identified during all of those reviews, those  
9 particular items may have been identified as  
10 post-restart actions.

11     MR. GROBE: I'm not sure I understand your  
12 question, Bill. Was that a priority to March of  
13 2002 when the plant was shut down or was it as of  
14 today?

15     MR. RULAND: Both.

16     MR. GROBE: I think, Ken, you answered the  
17 question at the time the plant went down for it's  
18 refueling outage in February of 2002.

19     MR. BYRD: What percentage had been  
20 completed then?

21     MR. GROBE: How many items were there?

22     MR. BYRD: Essentially all of them. We had

1 responded to things that had been -- we had as  
2 condition reports but had not been -- or request  
3 for assistance had not been dealt with except for  
4 a very few, but a vast majority of them were still  
5 there.

6 MR. GROBE: So let me make sure I understand  
7 if we could, Bill.

8 MR. RULAND: Let me ask this question. So  
9 if I understand what you're telling us, you had  
10 identified a thousand -- about a thousand open  
11 items as part of your design basis validation  
12 program, and essentially all of them are still  
13 open; is that what I heard?

14 MR. BYRD: The majority of them are still  
15 open, essentially all of them, correct.

16 MR. RULAND: Essentially all of them?

17 MR. BYRD: But --

18 MR. RULAND: That's all I needed. Thank  
19 you.

20 MR. GROBE: Can I ask a follow-up question?  
21 If I understand correctly, I think I heard what  
22 you said, that is that a specific issue clearly

1 resulted in an operability concern, then it was  
2 put into the corrective action system? If it  
3 simply asks an engineering question, complicated  
4 engineering question that required analysis and  
5 further follow-up, but it wasn't obvious that was  
6 an operability then if it was not put in the  
7 correct place under one of these two things,  
8 corrective action tracking system or a DVB  
9 tracking program database.

10 MR. BYRD: That is correct, the ones that  
11 had been identified as requiring needed to be  
12 addressed had been put in the corrective action  
13 program at the time. And then some of them were  
14 also put into the corrective action program, which  
15 would be the second bullet you see that, and that  
16 actually had been addressed prior to the -- a year  
17 ago those issues by and large have all been  
18 identified, so the first -- what I call the first  
19 two types of issues as proportioned had been  
20 resolved.

21 Then there was the third group of  
22 issues which had been reviewed and determined that



1 they didn't warrant a condition report at the  
2 time, that was a determination, had been put into  
3 a request for assistance. Those issues by and  
4 large had not been resolved, and those were the  
5 issues which subsequently were put back through  
6 the condition report process. Every one of them  
7 went back in a condition report, and so those  
8 would have been addressed as per the condition  
9 report process.

10 MR. GROBE: Okay. And that comprised most  
11 of the questions that came out of the design --

12 MR. BYRD That comprised most of the  
13 questions, and many of them were, in fact, just  
14 essentially questions not involving operability  
15 issues or things of that nature.

16 MR. GROBE: I mean, that's what these kinds  
17 of reviews do, they generate questions, okay.  
18 Now, that was on -- I think on Slide 32, that's  
19 where you described those, just so that everybody  
20 was following where I was at. Could you, on Slide  
21 33 it said completion of open items had less than  
22 adequate priority. Could you talk about that

1 again, make sure I understand what you're saying.

2 MR. POWERS: On the priority on that, in  
3 fact, we communicated in a letter, in a follow-up  
4 letter to our 50.54(f) response in terms of  
5 priority of calculations and skill to get them  
6 done, these were the finding calculation updates  
7 that we have been projected they would be done by  
8 the end of 2000. In fact, not all of them had  
9 gotten done by the beginning of 2002, there was  
10 still remaining stuff to get done and we talk  
11 about priority, we talk about the -- what we mean  
12 is the number of activities the site and relative  
13 priority for the engineers updating a calculation  
14 for clarity purposes. For example, is it  
15 something that is scheduled to do and there is  
16 other issues such as modifications that is  
17 required or system operability assessment required  
18 for a piece of equipment, those have higher  
19 priority -- can take higher priority.

20 Now, we don't think that the  
21 appropriate priority was placed on finishing up  
22 this effort. It was a major commitment that we

1 should have followed through on. In fact, last  
2 year we found the condition that we were in, we  
3 reactivated the project, applied a lot more  
4 resources to get assistance to get these done, and  
5 finished up many of the calculations in the course  
6 of last year. So there was -- we didn't have  
7 adequate priority review to get the projects done.

8 MR. GROBE: And I don't mean to split hairs,  
9 but I'd say it had no priority if it was scheduled  
10 to be done in the year 2000, and at the time this  
11 outage started, the vast majority of the work  
12 hadn't been even resourced. Were there resources  
13 in the budget to accomplish this work?

14 MR. POWERS: I don't know the answer to  
15 that, Jack

16 MR. GROBE: I was just puzzled by that  
17 question, had less than adequate priority. You  
18 know, I consider priority, I have gotten things to  
19 do and these things will be done on Monday and  
20 these things will be done on Tuesday and these  
21 things will be done by Friday, that's  
22 prioritizing. But these things weren't done for

1 years, so I'm trying to understand whether or not  
2 the resources were scheduled and applied or  
3 whether, in fact, there was no priority because  
4 they weren't put in your corrective action system,  
5 they weren't tracked in any active work management  
6 data base that I'm aware of, I don't believe. Was  
7 this DVB an active work management data base, or  
8 was it just a tracking system.

9 MR. POWERS: I believe it was a list of  
10 things that needed to be done, the priority of it  
11 was not -- in that case was not appropriate. We  
12 believe it should have been in the corrective  
13 action program, so one of the things we have  
14 looked to is one of the specifics of the design  
15 base validation program, that was the plan that --  
16 because it was expected to be a large volume of  
17 issues that would need to be dealt with, and if  
18 they were lower level ones that have a stand-alone  
19 database for tracking that through. And in  
20 hindsight as we looked at that, we don't think  
21 that that was an appropriate database controlled  
22 network. However, it was a workload that was for

1 the internal engineers to get done, you know, it  
2 wasn't a priority. We don't --

3 MR. LEIDICK: We understand your point,  
4 Jack, the work wasn't done, should have been done.  
5 We are cleaning up all the issues at this point.

6 MR. GROBE: And that gets back to, everybody  
7 defines safety in our culture differently, but I  
8 think included in Dr. Haber's definition is the  
9 right resources with the right capability to focus  
10 on the right safety issues, and maybe this is a  
11 cultural issue that is already addressed.

12 MR. SCHRAUDER: You know, one of the things  
13 we did do is eliminate all of those what -- Jim  
14 referred to as rogue databases, all of those are  
15 now captured in the corrective action program, so  
16 they are elevated into the appropriate level. I  
17 can't imagine them not being done by their due  
18 dates.

19 MR. GROBE: One of the issues that is on the  
20 restart checklist is the completeness and accuracy  
21 of the information, not only internal records but  
22 information that you have submitted to us, and I

1 understand that under Pat McCluskey's group they  
2 are going through a sampling evaluation of past  
3 significant documents that have been submitted to  
4 the agency on the dockets. This is one that I  
5 would have expected to be part of that sampling  
6 population. But the first bullet on Page 34 says  
7 design base validation program was completed to  
8 the extent defined in the responses.

9           And so does that mean that you have  
10 completed the review of that and you have  
11 concluded that was complete and accurate in all  
12 material respects?

13     MR. POWERS: No, it does not. This is just  
14 a characterization of looking at the 54 letter,  
15 what it said would be done relative to what was  
16 done, each of the design basis validation programs  
17 would be done and issues would be put into  
18 tracking systems based on their priority and a  
19 follow-up letter gave us a status of that in terms  
20 of 50 significant issues, 12 of which went into  
21 CRs and the balance of which went into the  
22 corrective action tracking system, and the

1 remainder were in a third level of the system, and  
2 with a projected date to complete those actions at  
3 the end of 2000. So when we make this statement  
4 on here, that is all it's intended to imply, Jack.  
5 It does not in my view constitute any sort of  
6 statement on acceptability.

7 MR. GROBE: Okay. So that the work that is  
8 being done under Pat's direction is still looking  
9 at this?

10 MR. LEIDICK: Yes, it is, and it does  
11 include this one.

12 So let's wrap this up, we  
13 appreciate your time today. We have certainly --  
14 I think we have spent a lot of time talking about  
15 what isn't done yet. Suffice it to say that six  
16 months ago we were here, I believe we presented  
17 our grand plan, if you will, for attacking all of  
18 the open questions from a design perspective, and  
19 there's been a tremendous amount of work that has  
20 been done. There have been a lot of issues that  
21 have been satisfactorily resolved, the bulk of  
22 them have been satisfactorily resolved, whether

1 it's through the safety function validation  
2 program or self-assessment process, the topical  
3 area reviews, latent issue reviews and various  
4 programs that we have had out there.

5           So as Jim said earlier, I think we  
6 were looking at a rather substantial forest, if  
7 you will, at the end of last year in terms of open  
8 questions and open issues, and now we are able to  
9 see what's left. And we have tried to present  
10 today what's left. There is a fair amount of work  
11 to go yet between now and the NOP test and the  
12 restart, we have got it reasonably well bounded,  
13 except the electrical system, I think I'd  
14 recommend that we have perhaps a conference call  
15 next week between the specialists to get a better  
16 dialogue going on what's involved there, what our  
17 approach is there to make sure you and us are on  
18 the same page in terms of the approach to restart  
19 the electrical system.

20           That is the -- I think the most  
21 significant loose end that we have out there. But  
22 we have really changed the design documentation



1 and design of this ~~plan~~ plant, and it's been a very  
2 robust challenge, if you will, and I think when  
3 the dust settles again, the completion of the  
4 remaining actions that we have talked about here  
5 today that we will be able to establish that there  
6 is reasonable assurance that the plant systems  
7 have been able to perform their intended safety  
8 functions.

9           So, again, we focused on the  
10 half-empty version if you will here today, and  
11 tried to tell you what's left to do, and we spent  
12 our time identifying that, and I hope we have got  
13 good feedback on that, and I appreciate your time  
14 today.

15           I would ask Bob Coward, who's been  
16 through some of the reviews today at other  
17 stations to give his perspective of what he's seen  
18 here at Davis-Besse relative to others in the  
19 industry.

20   MR. COWARD: I guess we were talking coming  
21 out on the plane, and I had, I'm not sure I'd use  
22 the word pleasure, but the opportunity to

1 participate in the number of the plants that have  
2 been through this process going back to probably  
3 the beginning of the late '80s at Nine Mile Point  
4 was the first one I was involved in and if you go  
5 also to Salem, Crystal River, Cooper, most of the  
6 ones I have been involved with, if you go look at  
7 those, I told Gary what's interesting about  
8 Davis-Besse is there is certainly a lot of dust  
9 and dirt that's been kicked up in the last 12  
10 months, been tremendous amounts of activity, lots  
11 of people have looked at lots of paper, lots of  
12 people have generated lots of paper.

13           When you get all the way down to  
14 the end, and we are going to leave electrical  
15 systems aside for now because no one knows, we  
16 think we -- only we know what's going to happen,  
17 but no one knows for sure what's going to come out  
18 of this, but that aside, because that was more of  
19 a management issue, if you look from a design  
20 perspective, did we have to redo the sump? Yeah.  
21 Do we have issues of AOC involvement? Yeah.  
22 Unfortunately the timing of that got rolled into

1 this outage. Now, that is something everybody  
2 else is also doing, and the experience here at  
3 Davis-Besse is not really tremendously different  
4 than what our plants are seeing with regard to  
5 their amount of AOCs.

6           When you look at the big picture,  
7 like when we were talking this morning was not do  
8 you want to compare grades of bad, but Davis-Besse  
9 ain't that bad. When we're all done with design  
10 issues, design problems with this plant, it had to  
11 be fixed, you know, are we redoing all the health  
12 stuff like we did at Cook? No. Are we going to  
13 be sitting here fighting over EQ the way the  
14 N.R.C. is still doing on Cooper with EQ? No.

15           Are we having to build all new  
16 safety-related enclosures and put in new  
17 safety-related equipment like they did at Crystal  
18 River? I see Tom Payne who went through the whole  
19 Salem experience with me, all kinds of  
20 modifications to the plant, you know what, I think  
21 when we talked here back in December, that what we  
22 had was we had a bunch of calculations that

1 probably could have been better, I don't think  
2 anybody disputes that. Were there some  
3 unsubstantiated assumptions? Yes. Were there  
4 some -- did they look at perhaps all of the  
5 bounding conditions directly in the calc? No.  
6 But in general the plant is safe and the design is  
7 sound.

8         We have got like the HPI problem,  
9 that one fell through the cracks, it fell down the  
10 cracks during design, it fell through the cracks  
11 in the '80's and in the assessments in the '90s.  
12 Deisel, is this diesel challenged during it's  
13 starting sequence on an SFAS? Yes. But we had  
14 the analysis and we have good test data to show  
15 that this still works fine.

16         So the big picture, you know, I  
17 think that, you know, having been involved in some  
18 of these restarts, and I know Marty saw us going  
19 through the stuff in January, we dug into this  
20 real hard, and you look at like the -- some of the  
21 decay heat removal/LP stuff, what is the biggest  
22 issue is that, you know, there is a potential

1 concern with boron precipitation control back-up  
2 method, all right, we are not talking about, you  
3 know, primary safety mitigating functions.

4           In most cases here, most of the  
5 concerns that everyone has, and we have had some,  
6 we identified some ourselves working with the  
7 people at Davis-Besse, you know, just like I said,  
8 it was just Gary and I were talking about it, and  
9 I told him that I felt good seeing where we are  
10 compared to nine months ago, just from the  
11 standpoint that whether everything is settled,  
12 you're know not to say there is nothing, but in  
13 the big picture the situation I think is not what  
14 people thought it was going to be last September  
15 and October. That is just -- I'm not sure if that  
16 helps, but that is just a perspective.

17   MR. LEIDICK: We do have work to do, we are  
18 about doing that and we thank you for your time.

19   MR. GROBE: Thanks. Any other questions?

20           (No response.)

21   MR. GROBE: Okay. No others.

22   MR. RULAND: No questions from headquarters.

1 MR. GROBE: I have a couple of observations.  
2 This is sort of a milestone that First Energy has  
3 been working on for quite a while, a number of  
4 months, a frequent amount of effort has gone into  
5 it. You have gotten to the point where you were  
6 able to conclude that you think that programs and  
7 processes that you have accomplished are getting  
8 you to the end of the tunnel. You're not there  
9 yet, there is still a lot of work to do. I think  
10 that is a milestone.

11 When you completed the system  
12 health reviews and the five latent issues reviews,  
13 you weren't there, you decided you had to do more,  
14 and then you decided you had to do some topical  
15 reviews, and then it was a learning process, and I  
16 think it's important that you have gotten to this  
17 point.

18 Marty Farber has been leading an  
19 effort that has been paralleling your activities  
20 for quite a few months now, and he's been working  
21 very hard at that with a lot of support from other  
22 folks. We still have a lot of inspections to do.

1 We looked at your system health review, we looked  
2 at your latent issue reviews and found that the  
3 engineering assessment board was adding  
4 significant value, that the reviews were being  
5 done and the appropriate depth, and then when you  
6 went to the safety function validation project, we  
7 looked at that and a number of inspectors out  
8 there and found that that was going into the  
9 appropriate depth.

10           We are now looking at the topical  
11 area reviews, and we are going for -- continuing  
12 to inspect, and as you finish work, we will be in  
13 there to inspect. An additional part, it's not --  
14 what we call it is the corrective action team  
15 inspection. It's intended to look in large part  
16 at the effectiveness of the corrective action  
17 program, but the scope of effort that we have  
18 chosen is largely dominated by correcting  
19 engineering issues, so Marty's work in combination  
20 with Zelig's work will leave us the information  
21 that we need to decide whether or not we can agree  
22 with you, and that likely is going to take

1 multiple additional weeks of effort over the next  
2 period of time.

3           So I think this has been very  
4 informative, I have learned some things here today  
5 that I didn't know, and I have got about 30  
6 questions on the front page of your book here,  
7 it's covered with handwriting, so we have got a  
8 lot of information we need here and it's been  
9 helpful for me, and I'm sure the others sitting  
10 here at the table, to put in focus where we are  
11 at, and where we need to go. I encourage you to  
12 figure that even has the potential to be a  
13 licensing activity that is going to require us to  
14 find resources at headquarters to address, for  
15 example, the -- you called me last Thursday  
16 morning when it looked like there was a potential  
17 for modifying the HPI pump, might be on a  
18 competing level with replacement of the pump, and  
19 I initiated activities in headquarters to see  
20 where we would find the resources to provide an  
21 adequate review of that type of a design if you  
22 decide to go forward with that so that Pat has



1 weekly calls with Tony Mendiola and his staff, and  
2 I would encourage you to make sure that everything  
3 that could potentially be a licensing issue is  
4 being discussed, not that we will start any  
5 activities, but at least we will --

6 MR. LEIDICK: I had a letter, a list that  
7 has more on it than less.

8 MR. GROBE: We also. So I really appreciate  
9 the amount of effort that went into preparing this  
10 presentation, it was very comprehensive and very  
11 useful.

12 MR. LEIDICK: We have reached a point where,  
13 you know, six months ago we didn't know where to  
14 start, and we're getting there. Thanks.

15 MR. GROBE: Christine?

16 MS. LIPA: We are going to take a ten-minute  
17 break and then we will open it up for comments and  
18 questions from members of the public, and we will  
19 be starting in here, going to headquarters, and  
20 then we will go to people on the bridge line, so  
21 be back here at 4:20.

22 (Whereupon, a recess was

1 had, after which the meeting

2 ~~hearing~~ was resumed as

3 follows:)

4 MS. LIPA: We are just about ready to

5 continue here. What we'd like to do at this point

6 is open it up for questions or comments from

7 members of the public that they have for the

8 N.R.C. folks that are here at headquarters, and so

9 let's begin with that. If there is anybody in the

10 room here that has a comment or question, if they

11 could come up. We have a microphone over on the

12 podium over there across the room.

13 Is there anybody that has any

14 questions?

15 (No response.)

16 MS. LIPA: Is there anybody at headquarters?

17 Is your room open to the public?

18 MR. MENDIOLA: This is Tony, and yeah, we

19 have somebody with a question.

20 MR. HORNER: Dan Horner from McGraw-Hill. I

21 guess I want to -- I didn't catch one piece at the

22 end of Mr. Coward's statement. He was talking

1 about a time frame of something happening in the  
2 September-October time frame, and I didn't quite  
3 catch what that was. Could you repeat that,  
4 please?

5 MR. COWARD: What I meant was the  
6 September-October time frame after the LAR reviews  
7 had been completed, but before the topical reviews  
8 had been complete, the safety function reviews had  
9 been completed, most importantly before the  
10 questions that were placed in the LARs were  
11 answered, there were a number of outstanding  
12 design questions and there were some people who  
13 thought there were design issues with Davis-Besse.

14 And what's happened since that time  
15 frame is these other additional reviews have been  
16 performed, and most of the programs and systems  
17 are satisfactory, and many if not all of the  
18 questions that were identified during the LARs  
19 have been answered. And when the questions were  
20 answered all of the, quote, issues went away.  
21 That's what I meant.

22 MS. LIPA: If you could spell your name,

1 sir.

2 MR. HORNER: I'm sorry, Daniel H-o-r-n-e-r,  
3 Daniel Horner.

4 MS. LIPA: Thank you. Any other questions  
5 from headquarters?

6 MR. MENDIOLA: No other questions from  
7 headquarters.

8 MS. LIPA: Now would be time for anybody on  
9 the phone lines who has a question to work through  
10 the instructions that the operator will give you.

11 THE OPERATOR: If you would like to ask a  
12 question, please press Star 1 on your touch-tone  
13 phone.

14 (No response.)

15 THE OPERATOR: Currently there are no  
16 questions.

17 MS. LIPA: Okay, thank you. Well, if there  
18 are no further questions, that concludes our  
19 meeting. And, everybody, thank you for coming.

20 MR. LEIDICK: Thank you, Christine, I  
21 appreciate it.

22 (Which were all the

1           proceedings had and  
 2           testimony taken in the  
 3           above-entitled matter at  
 4           the time and place  
 5           aforesaid.)

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                                   ) SS.  
 2       COUNTY OF KANE    )

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