```
BEFORE THE UNITED STATES
1
         NUCLEAR REGULATORY COMMISSION
2
3
     IN RE: THE MATTER
                              )
                    )
         OF
4
                      )
                     )
     DAVIS-BESSE
5
                            )
6
            REPORT OF PROCEEDINGS PUBLIC MEETING
7
               May 7, 2003
               1:00 P.M.
8
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;
        MR. DAVE HILLS;
19
20
        MS. CINDY PEDERSON;
21
        MR. JACK GROBE; and
22
        MR. DAVE PASSEHL
```

1

- 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 CLUSKEY 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.

MS. LIPA: Good afternoon and welcome to
 First Energy and members of the public. I'm
 Christine Lipa, and I'm a branch chief here in
 Region III for the NRC, and I am responsible for
 the NRC inspection program at Davis-Besse. I'm a
 member of the Davis-Besse oversight panel, and we
 will go through the rest of the introductions over
 here on our side.
 Next to me is Dave Passehl, he is a
 project engineer. And behind Dave is Monty Monte
 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. MR. HOPKINS; This is Jon Hopkins, NRR 5 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. MR. HORNER: Dan Horner, McGraw-Hill 12 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

engineering design issues, and this is a follow-up
 to our December 23rd meeting that we held in here
 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. We have several special inspections 12 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

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,

1 present results and conclusions of these reviews,

- 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

program over to Bob Schrauder. He will talk about
 the design reviews, and Jim Powers will present
 the remaining issues that we have as a result of
 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. As you might recall, we discussed 18 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

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

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. 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. MS. LIPA: Thank you.

1 answered the questions, got to the bottom of it.

10

19

- 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. MR. GARDNER: Could I ask a question about 13 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

9

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. 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 --MR. SCHRAUDER: Administrative Letter 90-10 16 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

the year gives me the right level of specificity
 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.

MR. SCHRAUDER: I believe that will actuallywind up encompassing, too, the safety featuresactuation 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. We have looked at temperatures in 12 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? MR. SCHRAUDER: 40 something degrees down. 17 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?

MR. SCHRAUDER: That is correct. And then
of course we have a very high expectation of
showing operability there. But if you didn't, for
instance, then we are dealing with obviously
operability of the system that would pass
operability as well, but really this one has a
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 for4 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.

MS. LIPA: And that is not planned beforerestart?

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 could3 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

18

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 uncertainly 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. 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 small9 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

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. In other words, it's a significant 11 effort that we are applying to it. MR. SCHRAUDER: And will have an extent of 13 condition associated with it. MR. GROBE: And there is -- does this 15 include Mode 4 mode restraints? MR. POWERS: They are looking -- that is 17 right at a mode restraint that would be required 18 associated with these instruments. 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 it's in the corrective action program, it's a

10

12

14

16

19

2 significant root cause CR, Jack, with corrective

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 --MR. POWERS: I think we will follow up in 6 detail on a weekly call. MR. MENDIOLA: That would be fine. Thank 8 you. 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

1 the things you have already stated, but --

2

5

7

9

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

A couple of those specific ones arerelated 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? MR. SCHRAUDER: Prior to Mode 4 19 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. MR. SCHRAUDER: The next system I will talk 16 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

problem with the tested heights of water required
 for the suction pad path versus the analyzed actual
 height that you could achieve.
 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. From a license perspective on that 19 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

concern exceptions associated with that, so we
 need to look at that perspective, and whether we
 need to change that licensing basis or whether we
 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. MR. GROBE: This is a difficult issue to 10 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. MR. SCHRAUDER: I think Ken is the best --16 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. 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. So our method of preventing this is 16 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

6

involves a high pressure injection pump, and we
 would take a high pressure injection pump and we
 would inject it through our -- what we call our
 auxiliary spray line. That is our primary method,
 and that's through our high pressure injection
 pump.
 Our alternate method is through our
 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. We also had a second issue which 16 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

non-vortex issue. We'd also eliminate the single
 failure. Now we have a single failure exemption
 method. We could eliminate that because the loss
 of a training train of a diesel would not affect its
 operation.
 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 a11 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 value 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. MR. SCHRAUDER: The next system is the 5 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. 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

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

so I would not anticipate a procedural change as a
 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?

MR. SCHRAUDER: I would not anticipate that

6

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. MR. SCHRAUDER: Yes, sir.

20

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

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

11 MR. GROBE: Has the tech spec provision for12 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 availability22 right now of the off-site review committee. They

have drafts of it to review, we need to get them
 the final copy and then have a meeting with them.
 MR. PASSEHL: You are referring to in your
 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 resert recirc, when we

6 have gone to the isolated resert recirc and that is

7 currently still being resolved, and we are looking

8 at a couple of different possibilities,

9 potentially minimum resert 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 resert 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

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

What we found is the actual flow in
this case, the flow that we have demonstrated
supports the LOCA analyses. It's an issue of tech
spec that actually had a more restrictive flow in
it than the -- the LOCA analysis flow would be.
The actual flow as exhibited in the field is
expected to meet both the design and tech spec
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. MR. GARDNER: Thank you. 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.

11

12

21 When we went to the separation from

22 the latent criteria and heat up of the ultimate

1 heat sync 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 --MR. SCHRAUDER: Right, at the time it was 16 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. And that analysis is not complete 19 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

system, we just don't have the final analysis on
 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

MR. GROBE: Two questions, last time I
 touched this issue, I understood the calculations
 were going to be completed in the second week - 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. MR. GARDNER: So that includes degraded 12 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 guestions 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. MR. GROBE: And it's your review looking at 12 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? MR. POWERS: That still remains to be run, 19 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

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

5 MR. GROBE: Yeah, probably. Do you have6 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. MR. GROBE: Thanks. 6 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. MS. LIPA: So we will have another shot at 16 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

follows:)
 MR. GROBE: It's 2:30, and we're ready to
 continue. Go ahead.
 MR. SCHRAUDER: Thank you, Christine. The
 next area that also involved design reviews, if
 you will, are topical area reviews. The purpose
 of these reviews, they were cross-cutting generic
 issues that had the potential to affect multiple
 systems.
 Listed here are the five that we
 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? MR. POWERS: Well, that was specific. We 18 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.

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

significant numbers of distribution, which means
 every number of questions, CRs asked. So what
 goes together? These are the ones that - MR. GROBE: I understand what you're saying,
 Jim, that during your latent issues reviews you
 identified a number of CRs that affected seismic
 qualification, station flooding and so on, and you
 called those out individually as cross-cutting
 engineering concerns.
 MR. POWERS: Right.
 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. MR. GROBE: Could you just, once you get 12 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. MR. SCHRAUDER: Again, the next slide was 19 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

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

MR. GROBE: When do you expect the analyses
and calculation validations to be done?
MR. SCHRAUDER: I believe that date is -- we
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.

MR. FARBER: Are you taking a backward look
 at calculations that were approved prior to your
 implementation of the improvements?
 MR. POWERS: Yeah. And we have looked at - in fact, our engineering assessment board looked
 at calculations during one of the past assessments
 we have recently done, and engineering restart
 readiness assessments were done by corporate level
 composite EAP.
 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

outstanding. I would say in the ballpark of eight
 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 to21 make is that many of these analyses are in various22 stages of being completed, and internally they are

far enough along that you feel comfortable that
 they are not far enough along that we can evaluate
 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

and went through recovery processes as well as
 were staffed with people who had participated in
 those recoveries and have gone through design
 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. The four topics I'd like to touch 12 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. The electrical distribution system, 18 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

COUNTY COURT REPORTERS, INC.

600 S. County Farm Rd., Wheaton, IL 630-653-1622

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

it's not clear that the pump would be damaged, but
 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

provide satisfactory pumps for the application at
 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,

we will be taking the resultant wear and preparing
 wear rings to put in the pump in the plant and
 actually test it with that amount of wear to
 demonstrate it works.
 And so we believe with a
 combination of laboratory testing and actual
 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 --MR. COWARD: I think you did it pretty well, 19 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

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

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

And that is ongoing with a plan to
support initially our mode change for the pressure
testing. We talked about a mid June time frame
for having that available, hoping maybe earlier
because we have applied a number of electrical
engineers to the project.
We have changed the project
structure somewhat at the site from what you may
have -- those of you who have been there may have
seen. We brought our electrical superintendent
from the Menkins organization, Dave Hemmling, and
assigned him to head up this project, manage this
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. MR. PASSEHL: Just a question on that. Do 17 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

analysis. We are making some changes in the
 electrical distribution system. One of the issues
 that we had that we were actually doing
 modifications on this week is under voltage relay
 setpoints and setpoint tolerances associated with
 that.
 We found that the installed relays
 did not have a setpoint tolerance capability that

9 would match the need in the plant, and I think we10 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

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

1 there may be some operability determinations that

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

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. We will provide you with details on 16 17 that and have a dialogue. MR. GARDNER: Yeah, I'd like to have that. 18 19 Usually you define your fault currents and plot 20 your fault currents and breaker currents 21 characteristics which are fixed based on the

1 are and how those go down through, to approach it

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
required to be operable for Modes 3 and 4?
 MR. POWERS: That's right, that's right.
 Although I believe that analysis would be heading
 towards all modes, it's not necessarily restricted
 to those modes, so in that I will need to get more
 detail to you on the structure of that operability
 determination.
 MR. GROBE: Now I'm confused. That was a
 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 isolated12 then?

13 MR. POWERS: Not necessarily, Jack. The14 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 to21 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 stoke stroke the value 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. And modifications consist of things 19 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 he 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? MR. POWERS: Right. They are, as Bob 17 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. MS. PEDERSON: On the 19 valves that had 21 22 negative margin, have we covered each of those in

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 the previous discussions as far as impacts, or are

2 there some others that we haven't talked impacts

reviews such that we have all the LERs we had
 expected to see from AOV reviews, or are there
 still some ongoing?
 MR. POWERS: I believe we have documented
 them all in LERs, but I'd have to ask engineering
 one more time to be sure. The list that I have
 described here is, as we know the scope we have
 done the calculations, but I want to make sure
 we've got it thoroughly documented with LERs where
 necessary.
 MS. LIPA: On the AOVs, have you shared what
 you learned here with your other FENOC sites and
 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. MS. LIPA: Okay. Thank you. 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? 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

3

4

9

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. MR. FARBER: Thank you. 16 MR. POWERS: We can move on to the next 17 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

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

And I will talk on the following
topic, design base validation program that had
been done and calculations maintenance are
important. There had been a practice of many
disciplines in the past at the plant, when small
changes were made, do that assessment against an
existing calculation for that change, document the
assessment and move on.
The problem becomes, as time passes
and coursel assessment are done, the cumulative

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. MR. PASSEHL: I just want to be clear on one 16 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. MR. GARDNER: Also, it sounds like the HVAC 12 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. MR. GARDNER: With the relay, the old 17

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 coding coating project, went 19 in the room to upgrade the coding 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? MR. POWERS: That's right, currently 4 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. MR. PASSEHL: Thank you. 13 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. Out of the population of 250 12 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

about doing another production run of the relays
 for our site and several other sites that use
 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? MR. POWERS: Sure. We have done some 17 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. Corrective action program applies 12 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.
 - COUNTY COURT REPORTERS, INC. 600 S. County Farm Rd., Wheaton, IL 630-653-1622

MR. POWERS: The conclusions on the 1 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. And so at the time that that 19 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

in calculations of assessments that had been done
 by your organization and ours. And that program
 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

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

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. MR. GROBE: I think, Ken, you answered the 16 17 question at the time the plant went down for it's 18 refueling outage in February of 2002. MR. BYRD: What percentage had been 19 20 completed then? 21 MR. GROBE: How many items were there?

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

responded to things that had been -- we had as
 condition reports but had not been -- or request
 for assistance had not been dealt with except for
 a very few, but a vast majority of them were still
 there.
 MR. GROBE: So let me make sure I understand
 if we could, Bill.
 MR. RULAND: Let me ask this question. So
 if I understand what you're telling us, you had
 identified a thousand -- about a thousand open
 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. 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. Then there was the third group of

10

21

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

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

10 MR. GROBE: Okay. And that comprised most11 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 MR. GROBE: I was just puzzled by that 16 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

2 wasn't a priority. We don't --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. 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. MR. SCHRAUDER: You know, one of the things 12 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. MR. GROBE: One of the issues that is on the 19 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 the internal engineers to get done, you know, it

3

6

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? MR. POWERS: No, it does not. This is just 13 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. So let's wrap this up, we 12 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 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

20 MR. COWARD: I guess we were taiking coming21 out on the plane, and I had, I'm not sure I'd use22 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

this outage. Now, that is something everybody
 else is also doing, and the experience here at
 Davis-Besse is not really tremendously different
 than what our plants are seeing with regard to
 their amount of AOCs.
 When you look at the big picture,
 like when we were talking this morning was not do
 you want to compare grades of bad, but Davis-Besse
 ain't that bad. When we're all done with design
 issues, design problems with this plant, it had to
 be fixed, you know, are we redoing all the health
 stuff like we did at Cook? No. Are we going to
 be sitting here fighting over EQ the way the
 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

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. 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. 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 probably could have been better, I don't think

8

16

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. MR. GROBE: Thanks. Any other questions? 19 20 (No response.) 21 MR. GROBE: Okay. No others.

22 MR. RULAND: No questions from headquarters.

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

multiple additional weeks of effort over the next
 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	2 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		

about a time frame of something happening in the
 September-October time frame, and I didn't quite
 catch what that was. Could you repeat that,
 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.)
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	

1 STATE OF ILLINOIS)) SS. 2 COUNTY OF KANE)

3 I, ELLEN E. PICCONY, a Notary Public 4 duly qualified and commissioned for the State of 5 Illinois, County of Kane, do hereby certify that 6 subject to the usual terms and conditions of 7 County Court Reporters, Inc., I reported in 8 shorthand the proceedings had and testimony taken 9 at the hearing of the above-entitled cause, and 10 that the foregoing transcript is a true, correct 11 and complete report of the entire testimony so 12 taken at the time and place hereinabove set forth. 13 14 15 16 17 Notary Public 18 My Commission Expires 19 October 15, 2003. 20 21 22

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

166