BEFORE THE UNITED STATES
NUCLEAR REGULATORY COMMISSION

IN RE: THE MATTER)
)
OF)
)
DAVIS-BESSE)

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

REPORT OF PROCEEDINGS had and testimony taken the hearing of the above-entitled matter, held before Ms. Christine Lipa, at the Nuclear Regulatory Commission, 801 Warrenville Road, Lisle, Illinois.

PRESENT ON BEHALF OF N.R.C.:

MS. CHRISTINE LIPA, Hearing Officer Branch Chief;
MR. MARTIN J. FARBER;
MR. RON GARDNER;
MR. DAVE HILLS;
MS. CINDY PEDERSON;
MR. JACK GROBE; and
MR. DAVE PASSEHL

PRESENT ON BEHALF OF DAVIS-BESSE:
MR. GARY LEIDICK;
MR. JIM POWERS;
MR. ROBERT SCHRAUDER;
MR. KENDALL BYRD;
MR. BOB COWARD;
MR. KEVIN SPENCER;
MR. STEVE FRANTZ; and
MR. PAT ~~MC CLUSKEY~~ MC CLOSKEY;
PRESENT AT HEADQUARTERS: NRC
MR. TONY MENDIOLA;
MR. JON HOPKINS;
BILL RULAND; and
MR. HO NEIH.
ALSO PRESENT:
MR. JOE DRAGO;
MR. DAN SALTER;
MR. BRIAN RENWICK;
MR. DENNIS DEMOSS; and
MR. TODD SCHNEIDER.
ALSO PRESENT AT HEADQUARTERS;
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. Following down is Jack Grobe, he's senior manager here in Region III. He's also chairman of the Davis-Besse oversight panel.

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

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

MR. HOPKINS; This is Jon Hopkins, NRR project manager.

MR. MENDIOLA: Tony Mendiola, NRR section chief.

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

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

MR. NIEH: Ho Neih.

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

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

(No response.)

MS. LIPA: I didn't see any. Okay, great. The purpose of today's meeting is to discuss First 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.

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

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

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

Before the meeting is adjourned,

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

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

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

We do plan to go for the business

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

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

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

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

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

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

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

This has really involved an extensive effort in terms of calculation reviews, detailed design reviews, revalidating design inputs, and finally the safety function validation project. So really where we are today is to present results and conclusions of these reviews, and to discuss the few remaining issues that we do have as a result of those views and the resolution plans for those remaining issues.

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

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

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.

MR. SCHRAUDER: Thank you, Gary.

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

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

We periodically at the public meetings updated you on our progress and the types of findings that we were -- that came out of those specific reviews. Now, over the last several months we have expended significant resources to answer the questions that had been raised through those specific reviews. And today, as Gary said, we want to discuss with you where we're at with those reviews, what remains to be looked at and what they have, in the aggregate, shown us.

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

As you might recall, we discussed in the past we had found 1,200 of these questions centering around the design of the plant. We took a graph to see if they would have responded as expected. To a large extent those questions have now been answered, and but for the few remaining items that we are going to discuss with you today, we have confirmed the adequacy of the design basis and the support systems, and that they would have performed to meet their intended function.

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

The next slide shows, going -- I'm sorry, we were already on the slide I wanted. The design reviews, the purpose was to provide assurance that the safety functions of those systems which have a significant contribution to the core damage frequency and the larger early 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 reviews were done under which category. And what really spawned the latent or the safety function validation project was we had initially scoped these five systems under the latent issue reviews, which did a very deep cut into the system, and, in fact, most of those systems had enough questions raised on them that we wound up conservatively declaring them inoperable at the time, so that raised the question of what does that mean for the rest of your systems.

We did find that the great -- the vast majority of the questions that were raised were centered around the calculational support of the design basis. And that's what then spawned the safety function validation project, which added -- in that process we identified those systems or those functions that contributed to 99 percent of the core damage frequency again, and then identified which systems contained those functions, and we came up with a list of 15 systems. Five of those systems we had already performed in the latent issue reviews, and then we did the additional ten systems under the safety function validation project.

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

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

MR. SCHRAUDER: I'm going to get into it, but my sense is that if we had all the final answers on the latent issue reviews, we had answered the questions, got to the bottom of it. We may not have gone through the safety function validation project, that is the bottom line I'm going to get to, is that these systems will be found to have been inoperable, other than the coolant system, and as we know, that had pressure boundary leakage and that was tech spec inoperable. You are allowed zero pressure boundary leakage.

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

MS. LIPA: Thank you.

MR. GROBE: Let me make sure I understand that. With respect to the emergency diesel generators didn't you have to add substantial cooling capacity for that room, and didn't that affect operability of the diesel generators?

MR. SCHRAUDER: Jack, you are correct, we had a question on the operability, and it was really the components in the diesel room itself, as a result of higher temperature, we are in the final stages of the analysis on that. We believe that the analysis, even at elevated temperature, is going to support operability. We were in -- we're getting a little ahead, but we are considering additional ventilation and margin into that room, but we have looked at the components in the room at the new elevated temperature, and the analysis is going to demonstrate that it was, in fact, operable.

MR. GROBE: Okay.

MR. SCHRAUDER: The next slide shows the set of systems that we are completed with and have demonstrated the safety functions have been confirmed on these systems. That is the main steam system, service water system, safety features actuation system, steam generators and the reactant coolant system. And obviously I want to make the caveat again, whereas I believe the reactant coolant system would have performed the system, it was tech spec inoperable as a result of pressure boundary leakage.

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

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

With that issue we did go out and look at the actual field setpoints, and where did we actually put it and would it have been -- would it have met tech spec, even though tech spec is non-conservative to the design basis calculation.

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

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

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

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

MR. SCHRAUDER: Right.

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

MR. SCHRAUDER: We were looking at

uncertainty across the board.

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

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

MR. GARDNER: Okay.

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

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

The system would have actually initiated versus where you would set your trip setpoint, the system would have worked, it would have just come into play somewhat later, and we have not gone back and calculated when it would come into play and what would be the impact of that, but we have a high expectation that it would have very little, if any, safety consequence as a result of that.

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

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

MR. GROBE: I have --

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

MR. GROBE: I'm not sure before the end of the year gives me the right level of specificity on --

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

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

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

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

One has to do with pumps and piping. What we found is they may be subject to a lower temperature than previously had been analyzed for. That difference is about eight degrees. This actually came about as a -- this wasn't one of the issues identified in the latent issue review or safety function validation, but it came out as a result of looking at a temperature difference that was identified in that, and that had to do with an inlet nozzle to the steam generator for off-speed water. So we analyzed those for the temperature difference, and they are, in fact -- the tubes in the steam generators that handle that came out fine.

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

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

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

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

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

MR. HILLS: So you are not expecting to see

that type of temperatures until like this winter
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 acceptable.
MR. GROBE: Are you tracking how many systems you anticipate having in a degraded but operable status at restart?
MR. SCHRAUDER: Yes, and I don't have that specific answer for you today, but I have asked them, and we are starting to put that together. I want to make sure I understand every system that we will have an open operability determination on. I don't think there is going to be very many at all, Jack, one or two maybe.
MR. GROBE: As soon as you get that together, if you could get that to Christine, I'd

appreciate it.

MR. SCHRAUDER: We will do that.

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

MR. SCHRAUDER: An extra one?

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

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

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

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

MS. LIPA: Okay. Thank you.

MS. PEDERSON: Did the other temperature

bring you down to 32 degrees?
MR. SCHRAUDER: That's the lowest it could still be pumping water through the system.
MS. PEDERSON: Okay.
MR. SCHRAUDER: So that is -- that would be the lower bounds of it, I guess. Ken, do you have anything to add on that?
MR. BYRD: No. The only thing, it is 32 degrees, and it's originally 40 degrees, and that was based on the temperature of the storage that was originally the source for the auxiliary feedwater system. If you are pumping water from a lake, service water can get down to 32.
MR. SCHRAUDER: Any other questions?
The auxiliary feedwater system is another one that instrument uncertainty comes into play, and it's on the pump flow acceptance criteria, instrument uncertainty was not formally documented for that either. There is -- we have had prepared a calculation for that, and we have verified it has no impact, but it is not a done, done, done calculation in the system yet, so it's

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

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

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

MR. POWERS: And that was a significant root cause CR that investigated that, and the team had to go through the process of looking at all the instruments and various levels of safety significance for setpoints. I think this is one -- in this particular one, Ken, where the surveillance instructed an allowance for instrument inaccuracy, the issue was we didn't have a specific calculation that backed up the percent, and that was taken in that procedure, it wasn't that it was overlooked entirely.

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

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

correlate?
MR. BYRD: The original value was slightly less than the calculated or recalculation, but it's acceptable where it is right now.
MR. GARDNER: But there is some difference between what was originally documented and what you are finding?
MR. BYRD: In this case there was a small difference.
MR. GARDNER: Then in no cases are you relying, I assume, and you can tell me if I'm incorrect, on calculation values that have no calculation because of this information?
MR. BYRD: We are going back on at least all pumps, which is actually calculating instrument uncertainty and putting that explicitly in the calculation
MR. GARDNER: Okay, thank you.
MR. GROBE: I understand instrument uncertainty for non-tech spec parameters. Is that being considered as a topical issue?
MR. POWERS: It's not a topical issue, but

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

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

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

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

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

MR. MENDIOLA: This is Tony Mendiola. I'm curious, what setpoint methodology do you use, and do you use a difference methodology for tech spec versus non-spec? I may be summarizing a few of the things you have already stated, but --

MR. BYRD: I can't answer that question. I could -- I'd have to talk to our I & C people to get a --

MR. POWERS: I think we will follow up in detail on a weekly call.

MR. MENDIOLA: That would be fine. Thank you.

MR. SCHRAUDER: If there is no more questions, we can move on to the component cooling water system. The remaining items on the component cooling water system are going to Mode 4, we are going to do a flow test. What we have discovered is that we have never performed this comprehensive flow test to measure the actual flow into some of the small components to observe component cooling. I'm talking about instruments that pass -- that don't have any line flow instrumentation on them. But major paths for component cooling water, like the heat coolers and all the larger components have been measured and most have been flow tested, but we want to take the component cooling water system and actually measure the flow to each of the components that it's required to serve.

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

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

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

MR. BYRD: I think to answer that, it

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

MR. FARBER: All right.

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

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

MR. HILLS: Thanks.

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

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

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

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

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

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

MS. PEDERSON: Thank you.

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.
MR. SCHRAUDER: The other issue on the
component cooling water that does have the
potential to impact system operability is on a set
of air-operated valves. As you know, during the
course of this we have also I will say base
labeled our air-operated valves. At many of the
plants are doing it, we did find the LER, certain
valves that cannot have adequate margin for the
system that they were in.
A couple of those specific ones are
related to the component cooling water, and if we

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

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

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

MR. SCHRAUDER: Prior to Mode 4

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

MR. HILLS: Thanks.

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

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

MR. PASSEHL: Thank you.

MR. SCHRAUDER: The next system I will talk about is the decay heat removal/low pressure injection system. The remaining issues on this have to do with a net positive suction head and potential vortexing issues related to the system's role in boron precipitation control. The safety 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 is we are performing system additional analyses and testing on that method of boron precipitation control. Those preliminary results on that also indicate that this function would have been able to perform. Nonetheless, in parallel with that we are designing and we are installing a modification which will add an additional method of boron precipitation control so we won't have to rely on this method. This is our secondary method, prior method being through the HPI pump. We will add a third method right now, which also includes the decay heat removal system. It will eliminate this concern as any concern will actually add more margin on the boron precipitation control.

From a license perspective on that we are still looking at it because this is identified in our licensing basis as our secondary 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.

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

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

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

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

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

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

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

So our method of preventing this is to have a method of boron precipitation control which is initiated after a loss of cooling accident, and essentially the method has to be a method that allows such amount of recirculation to go through the core, and the -- currently the method we have for doing this, one of them 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 to follow the suction of our low pressure injection pump and go back through the core, so essentially circulating through the core through our normal drop line and back into the normal injection.

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

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

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

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

That was actually a somewhat

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

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

As a result of the concerns that we had, though, with these two issues, we had initiated looking at other methods we could use for boron precipitation control, and as a result of that, we did initiate this modification to come up with another back-up method. And actually, once we got into there, there are some advantages to this other method, which is the reason that Bob had mentioned we might actually go ahead and make this our primary method.

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

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 is one of the reasons we are continuing to pursue this method. That pretty much summarizes where we are at right now.

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

MR. BYRD: I'm sorry.

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

The next issue still remaining is the ~~delay~~ decay heat removal/low pressure injection system. On the pump there is a cyclone separator for that purpose, and the reliability of that cyclone separator is called into question, and we are continuing to evaluate that and the impact on the seal of the decay heat removal and low pressure injection pumps. And then we will perform flow test demonstrating system margin. That is scheduled prior to restart, and again this is an issue that the last measurement that was taken on the system I believe was in the 1998 time frame, and it showed margin, but it showed decreasing margin at that time.

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

And then I had mentioned the air-operated value potential impact on the system also.

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

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

forward, and we can practically have a replacement
available in two weeks, so it's on its way, so
rather than going through an analysis, we will
simply replace it, Jack. That's the current plan.
MR. SCHRAUDER: The next system is the
emergency diesel generators. As you recall, we
had a voltage and frequency drop on those during
the first load step. We have had transient
analysis performed on that for the impact of that
frequency ~~valve~~ value. We knew that we had a voltage
and frequency drop on that, what we didn't have
was a transient analysis that demonstrated it was
acceptable.
We performed that transient
analysis, we have had that performed for us by
MPR, and we are in the final stages of owner
acceptance of that calculation and demonstrate
that that voltage frequency is not a problem for
us.
MR. PASSEHL: What was the magnitude and
duration of the drops?
MR. POWERS: Let me take a stab at that.

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

We are running the diesel generator and electrical system through the -- what would be the emergency sequencing of loading, and then we took the data on the performance both in voltage 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.

And the model that Bob described that MPR prepared that was done for testing at the site and benchmarked the model and use that model to predict the full accident conditions on the system, what would be the results. So we took that full accident condition, looked at the results we got in the margins that we had in the equipment, and found it was acceptable. And we have a calculation that details that evaluation out for us at the site, and I can give you the specific numbers on the weekly call.

MR. PASSEHL: Okay

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

MR. POWERS: That's right.

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

MR. POWERS: Yes, we need to.

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

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

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

MR. SCHRAUDER: There probably will be no procedure change. This was the same period of time, just what happens to it when it does start, so I would not anticipate a procedural change as a result of that.

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

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

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

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

the same vintage and type?
MR. POWERS: We didn't do the same vintage and type. However, we know our Beaver Valley unit has an exception from the voltage criteria in terms of the dip is somewhat below 75 percent criteria, and that is written in the license basis, so it was recognized at that site earlier on, so it's not unusual from our standing in the industry to have the sort of circumstances as long as technically it's addressed and it's acceptable
MR. GARDNER: I guess I was on the frequency more than the voltage.
MR. POWERS: I'd have to check on that one.
MR. GARDNER: Just curious.
MR. FARBER: Did you examine or try to determine whether there was a relatively straight forward hardware modification that would resolve this and ensure that the diesels don't have this unacceptable dip rather than pursue merely analytical --
MR. POWERS: Yeah. That's a good point. One of the things we are looking at for the longer

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

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

MR. GROBE: There is two potential licensing

basis provisions you have identified so far, one
for boron precipitation and one on the diesel
under frequency and under voltage. Do you
anticipated either of those requiring agency
review?
     MR. SCHRAUDER: I would not anticipate that
we would necessarily need to have the boron
precipitation one completed by restart. That
system will be demonstrated to be able to do that.
In the longer term we may want to change the
secondary method to the modification that we put
in, but we would still meet the license basis in
that. This other one may or may not require, you
know, licensing action, I'd have to go through the
5059 process. You'd have to determine whether, in
fact, it required a license amendment. My sense
is that it probably will not.
     MR. GROBE: Just be sensitive to the fact
that that takes a little bit of time.
     MR. SCHRAUDER: Yes, sir.
          The other issue identified on the
system remaining that we talked about already is

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

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

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

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.
MR. GROBE: Has the tech spec provision for
the HPI pumps, has that been submitted?
MR. POWERS: Not yet. The license amendment
request? Not yet, Jack. We had a meeting on that
this morning between Lou Myers and our licensing
analytical staff, and it's heading towards our
station review board today and for the off-site
review board following that. So we would expect
that would be probably the latter part of this
week, early next week.
MR. SCHRAUDER: Depends on availability
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 --

MR. SCHRAUDER: Yes

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

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

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

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

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

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

MR. FARBER: Thank you.

MR. SCHRAUDER: The final issue is inconsistencies between surveillance test criteria and technical specification requirements. The 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.

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

So that was the point I wanted to make.

MR. SCHRAUDER: But the actual flow --

MR. BYRD: The actual flow meets both, so we don't have a -- the issue is the two curves would cross over very low flow if you were to take the tech spec point and try to expand the rate into a system curve.

MS. LIPA: Do you anticipate a tech spec change will be necessary?

MR. BYRD I don't believe so right now for that. We are -- I'd have to -- I don't believe so. I'd have to -- that's still under consideration.

MR. GARDNER: Were you ready to go to another page? Because the instrument uncertainty issue at the very bottom, is that another instance where you have done preliminary results from an uncertainty issue or have you a basis for saying that you're pretty sure the uncertainties will be no problem?

MR. BYRD: In this case we actually have completed the calculation, and the issue uncertainty calculation has been performed and reviewed. Neither have been signed off yet. This is another calculation which actually did have instrument uncertainty in it. However, when we went through -- and I'm not an I & C person -- we did a different methodology, and the results, which is apparently improved, and the results were slightly different, though again it was not a significant difference between what we had prior to this and what we have now.

MR. GARDNER: Thank you.

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

When we went to the separation from the latent criteria and heat up of the ultimate heat ~~sync~~ sink, it was found that this operability determination looks like it was still used, at least one or two times after that, so it was a flawed operability determination and could impact, depending on whether the system was out longer than its allowed outage time, in a situation could result in an LER as a tech spec violation. And this is -- a past operability will be issued on this and not a current that will pull an operability issue out of the records.

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

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

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

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

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

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

And that analysis is not complete yet, so there is a potential in the electrical distribution system that that analysis could show some lack of margin in the electrical distribution system, we just don’t have the final analysis on that.

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

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

Is that still an accurate date?

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

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

MR. POWERS: One of the major considerations I described earlier was the motor-operated valves in the plant. And in this case the input to the motor-operated valves is voltage supplies by the AC distribution systems. In our motor-operated valve program, in many cases the input voltage was assumed to be in a low range of 80 percent as a conservative measure and starting from that point then we feel there is margin built into those calculations, capability calculations to accept some voltage drop-off in this system, and -- but that's what we're looking at most carefully, engineering is pulling out all of the design information from the programs. So as soon as the results are available they will be able to give us a thumbs up or not thumbs up on the valve's performance.

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

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

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

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

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

various motors throughout the plant, and getting
that accurately modeled into the system.
What I will point out and what was done at the plant, we were using the original instruction analysis software that the plant was built to over the years, and one of the issues that came up, that small changes were made to the plant, and they were each individually assessed and documented against the original calculations.
However, a collective reanalysis needed to be performed, and this had been identified several years back. The desire was to do a reanalysis to upgrade the software and process. As we got into, in last year's engineering reviews we found there was more questions raised that we wanted to factor into the reanalysis to make sure we answered all the various questions that had come up in the past year. So it's a pretty extensive reanalysis effort. We should be seeing the results of that starting this week.
MR. SCHRAUDER: That completes the

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

The next topic --

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

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

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

MR. POWERS: That still remains to be run, Jack. I talked to the analyst yesterday on that, they're working through the model, and I don't 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.
MR. GROBE: Yeah, probably. Do you have
generic information on this? This is not the
first plant that's had these kinds of problems.
MR. GARDNER: No. In fact, we have
previously looked at degraded voltage settings and
these type of valuations in the past, even at
Davis-Besse. Unfortunately, in our reviews we
didn't have the time to go down through the 480,
120-volt level, and so we stopped somewhere
between 4160 and 480, so we couldn't very well be
-- the results will find issues that weren't
previously identified
MR. GROBE: We have not had generic
communications with any supporting agency.
MR. GARDNER: We have had all sorts of
information about degraded voltage, about the
concern of having adequate voltage all the way
down to -- particularly to the 120-volt relays,

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

MR. GROBE: Thanks.

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

(No response.)

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

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

(Whereupon, a recess was had, after which the ~~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 those topical analyses with you at the previous public meeting. I was not anticipating going through all of them again. What I have done on the next page is, the last time that we met, updated on this, we had not completed and signed off on the Appendix R topical review. So I have listed in here in the same format that we presented in the past those actions that we need to do to support restart that came out after collective significance reviews in the Appendix R world.

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

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

MR. POWERS: Well, that was specific. We looked at it as a specific issue. It was a significant root CR that we needed to evaluate what the policy was at the site over the years for ~~spec tech~~ tech spec and non-tech spec significant instruments and ensure the setpoint policies were 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.

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

And so we looked at how many discrepancies for the number of attributes 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 correctly, was -- had a specific issue regarding instrument uncertainty, and when you started pulling the piece of yarn, the sweater unraveled and it became a broader issue that you are doing analysis on, it became kind of a cross-cutting issue. So I think I now understand how the two issues got on two different lists. My question now is, how many other non-topical areas do we have that are cross-cutting concerns that are engineering concerns that can affect multiple systems?

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

MR. GROBE: Are there any others?

MR. POWERS: Not that come to mind.

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

MR. POWERS: Okay.

MR. GROBE: Thank you.

MR. SCHRAUDER: Again, the next slide was just intended to show what came out of the collective significance review, Appendix R. The biggest one, again, was the rebaselining of the transient analysis, and then any procedure revisions that might result from that reanalysis will be incorporated prior to restart.

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

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

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.

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

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

So these are the things that came

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 it to come back the first week or so of July.

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

MR. GROBE: Thank you.

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

Again, that is not to say we didn't find discrepancies or issues in each of the areas that required remediation prior to restart. We did, and we went through those, and where it was warranted we did extent of conditions for those issues that came out of those reviews.

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

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

MR. FARBER: I've got a question that's a little broader than what we have been dealing with. A lot of the work that's being done, especially in the area of calculations are calculations that you have sent off to be done by outside agencies which have to have owner acceptance review. I'm also aware that Kevin Coin's inspection found a problem with the work that was done by a vendor for the sump mode, and my question is, has that caused you to examine your owner acceptance reviews and ensure that they are sufficiently robust to guarantee adequacy in the calc that you have?

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

So in the interim there has been some improvements in the program itself on how calculations are checked. Also, we are looking very closely at the modifications that we have performed at the site during the course of this outage where we have had them rolled up into a final package, the package is near complete, and the final package has all the reviews and programmatic requirements and documents, what's been done in the field that provides the basis for it, as well as -- and formalizes that package.

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

That was issued in the final design package, there was a difference there that should not have existed, and so we are looking specifically now at the configuration that is described in the topical, does it match rigorously the modification package. There is a number of things that we are doing to look into detail 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 at was quality of calculations, and the general finding was that they were improving. And so we are looking at the specific one, although we are doing extent of conditions, we are looking at specific circumstances around this.

One more extent of condition, you don't see a large extent of condition problems and owner acceptance, yet, in fact, I've got to tell you, I sat in an office yesterday evening with design engineers, engineering manager's office with some of the engineers voicing dissatisfaction with the performance of the -- some of the contractors who were performing calculations for them, unrelated, but, you know, the individual engineer had a copy of the calculation all marked up and red with comments all the way through it, and all the changes in the numbers at the beginning carries through an analysis, you know, the ownership there is quite hot.

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

MR. FARBER: Thank you.

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

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

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

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

So there is a number of them that are moving through that process, and I can't give you a number about how many are currently outstanding. I would say in the ballpark of eight to ten as an estimate.

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

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

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

MR. POWERS: All the significant CRs on design?

MR. GROBE: Yes.

MR. SCHRAUDER: The next slide we have just summarizes what we say about the design. The safety functions have been confirmed for a number of the systems. We have ongoing activities which we expect to conclude in a confirmation of an operability and operability of performance, their safety functions, and there are going to be, I'd say, one or two for these exclude the impact of electrical distribution, but we will have one or two systems, as we have described here, that will have been declared tech spec inoperable as a result of our reviews.

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

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

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

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

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

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

MR. GROBE: So HPI was non-functional?

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

MR. GROBE: Okay. The point I was going to make is that many of these analyses are in various 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.

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

MR. SCHRAUDER: I understand that, Jack

MR. POWERS: What I'd like to reiterate when we talk about some of the remaining design issues I'm going to discuss is the volume of design information that was reviewed over the course of the last year at the site. Our latent issues reviews and system health readiness reviews were structured after some of the developments and 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.

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

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

The electrical distribution system, I will just touch on that, and our air-operated valve program and emergency diesel generator loading. So as you can see, we discussed many of those, and these are what we consider our remaining top issues, each of which is resolvable.

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

And it -- the water, since it comes from the pump, may contain any debris such as grit that may be coming in the latter stages of accident function of the pump from the emergency sump, and there is -- can be grit and other fine debris during that time, and it can potentially cause damage to that bearing. And we say potentially, because we have got a number of 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.

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

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

We will come to a decision and, of course, inform you at that time of what that course will be. We believe either option will provide satisfactory pumps for the application at the site.

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

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

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

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 demonstrate each of the technical issues satisfactorily, that the pump will work.

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

surveillance test we do, we will run the pumps
through a regime that will demonstrate how
susceptible they are to clearance opening up and
stability, what is the natural frequency of the
pump relative to its operating speed.
And the analyses that we have done
have indicated that it's relatively close, that's
why the engineers have a concern of this, but we
believe that the field testing with a number of
factors that will affect that type of analysis of
the pumps, sometimes the analysis is not as
accurate as it can be without demonstration of
benchmark of actual performance in the actual
equipment.
And Bob Coward is with us from MPR
today, and Bob is actually heading up the team at
MPR that is looking at this option, so, Bob, is
there anything else that --
MR. COWARD: I think you did it pretty well,
Jim, unless there is any other specific questions
we can answer. I think Jim explained it fairly
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.

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

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

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

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

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

The next topic I'd like to discuss is the electrical distribution system. In the earlier discussions, Jack, one of the things you had brought up was past generic communication and our response on the electrical distribution concern at Davis-Besse.

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

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

So the resolution of the issue was to revalidate input analysis. We have got a team 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 very well acquainted with the operation.

Training, for example, has been one of his jobs in the past, so there is good leadership. We have also bolstered the team composition of electrical engineering supervision from Stone & Wester as well as several electrical engineers to help with the data input process.

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

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

MR. POWERS: There is none currently 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 would match the need in the plant, and I think we need the tech spec requirement for that, particularly the nine we are checking the relays out to a different type, and that was really separate from this issue of low voltage, so the answer is no, we don't see any modifications yet.

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

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

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

MR. POWERS: Right.

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

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

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

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

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

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

you are not coordinated, you might have a higher
level breaker open and take away a number of
those?
MR. POWERS: Well, we think from the work we
have done today, that the 70 loads that are being
factored in are going to give us a good picture on
the capability of the system, and, you know, we
will get into details with the coordination.
You're right, I'm going to have to get my
electrical team to give a brief --
MR. GROBE: And they probably shouldn't talk
to me, they should probably talk to Rob.
MR. POWERS: That's fine. We've got that
laid out with logic and rationale, how we are
going do this.
MR. GROBE: Again, I appreciate your logic
for terminal voltage issues, but I don't
understand breaker fuse coordinations, don't
understand your logic, and Ron I'm sure can get
into a lot more detail with you folks.
MR. LEIDICK: The impression is if we have a
weak link in the system and understand where those

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

MR. GARDNER: Sure.

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

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

MR. GARDNER: Yeah, I'd like to have that. Usually you define your fault currents and plot your fault currents and breaker currents characteristics which are fixed based on the breaker type and fuse type and cable type, and you take a look at what you've got, so it would be interesting to have a dialogue.

MR. POWERS: Okay.

MS. LIPA: At what point -- I have a question about process, and I want to make sure I'm clear. It sounds like what you're talking about is an operability evaluation for Modes 3 and 4.

MR. POWERS: Uh-huh.

MS. LIPA: So you have learned that you would need a tech spec change that would be allowed in the process.

MR. POWERS: We don't believe it would be a tech spec change. At this time the plan was for an operability determination.

MS. LIPA: For that 70 loads, that's all you need to consider?

MR. POWERS: For the system, that would give us an adequate sense of the system's performance capability. We'd be able to determine what would be operable.

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 smaller loads are loads that you don't need for Modes 3 and 4, are those going to be isolated then?

MR. POWERS: Not necessarily, Jack. The loads that -- the 70 major loads are the biggest loads that would affect the voltage of the system. The smaller loads can -- perhaps would be needed during Modes 3 and 4, but we are judging the performance of the system based on the 70 biggest loads which would affect the voltage the most.

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

MR. POWERS: That's what I meant.

Any other questions with the electrical distribution system?

(No response.)

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

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

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

And there is a number of factors that go into this, not only air pressure that is available, but other things can become an issue, and the overall functionality is assessed in great detail in design calculations, and 83 valves at the site were analyzed. These are our active, safety significant valves that were put in our program, similar to the issue initiatives consistent with those initiatives.

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

And modifications consist of things like stronger springs within the valve, multi-port solenoid valves that pour the air more effectively to and from the actuator. And probably there is one valve that -- which I would describe is the most significant valve, which is the makeup 3 valve, which is part of the makeup let down line. it's a containment isolation valve. On that one we are upgrading both the actuator and the valve body itself. And that modification is ongoing now. The actuator is being manufactured, we have a valve body at the site. We expect all that work to come to fruition on the 24th of this month. So it's very active, and we are in the process now of issuing design packages to the maintenance staff at the site to make these valve modifications.

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

MR. GARDNER: When we are talking about margin increase, are we talking about that there is uncertainty that the air-operated valve would function, or that there is a feeling that its timing would he be affected, and the timing of the function may be delayed, is it not working at all, or is it just that it will function, but it may not function at the time that was estimated?

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

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

MR. POWERS: Right. They are, as Bob described this, there is several of them that are involved in the component cooling water system, and those can connect component cooling water, but also air flow to the heat exchangers so the heat system is involved. These are the ones where we have calculations that have been prepared, and we believe that they will demonstrate adequate margin.

MR. GARDNER: Okay.

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

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

MR. POWERS: I would say in each case the margins that are built into the programs, the codes that are used to design the systems encompass, you know, the synergistic or collective affect that you have by changing -- if you need the code allowance for the system, the margin is already built into that, such that even meeting the code allowable without excess margin, you have already inherently built in capability.

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

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

MR. POWERS: Yes.

MS. PEDERSON: On the 19 valves that had negative margin, have we covered each of those in the previous discussions as far as impacts, or are there some others that we haven't talked impacts yet?

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

MS. PEDERSON: Have you finished your

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

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

MS. LIPA: Okay. Thank you.

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

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

MR. PASSEHL: Thank you.

MR. FARBER: Thank you, Jim. Most of what I'm hearing right now seems to focus on whether or not the valve will perform a function under a given condition, whether it's got enough thrust to close against a flow or a ~~DM~~ DP. My question is, is there anything in this program that's going to address the other functionality requirements, for example, of the back-up accumulators that provide air for -- in this case nitrogen for the valves?

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

MR. FARBER: Thank you.

MR. POWERS: We can move on to the next topic. This topic we touched on earlier, the load analysis for the engine was not updated, and when we did our SFAS testing we recognized that we have not met our license in particular for voltage depth and time frame of the voltage dip as well as frequency specifications that are included in the design standards that we adhere to.

And as I described earlier we have prepared a detailed model of the diesel generators. We benchmarked that actual field test performance of the diesel generator voltage and frequency, and then we have used that model to predict overall engine response that would be given in the full accident loading and have taken the results and looked at all the supply loads to assure that they will perform their safety functions, and we found satisfactory results there, so there were no modifications required in the plant to address this issue.

Although, we talked earlier there are some improvements that we are looking to make in the future with the governor system and potentially the diesel generator output breaker from an extent of condition standpoint. Maintaining our analysis up-to-date was one of the lessons learned, significant lessons learned that 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 several assessments are done, the cumulative affect needs to be assessed and incorporated into the calculations, so the engineering has a full picture on what the cumulative effects of changes have been, and in many areas that needed to be done. The diesel generator loading is an example. The electrical distribution system is an example.

Ken Byrd's area with the -- what we would call the safety and accident analysis for the plant, we have done substantial work and we have talked about with you in the past for things leading from our ultimate load sink temperature, the plant's cooling system, all the way to containment performance, and many of our more safety significant calculations have been upgraded through this process to latest industry standards and latest design status of the plants.

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

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

MR. POWERS: Well, not exactly. I wouldn't characterize it as not being undersized, it is undersized and has been from the day that we evaluated. During the tornado of 1998 that struck the site and took the off-site power out of the system, the site operated on the diesel generators. The room temperature was high, and subsequent assessment of that led to concerns for the lifetime of some of the electrical components, particularly realized the cabinets in the rooms and temperature in the cabinets where the engines are running in the long-term, we do need to increase the ventilation to the room, we want to do it for the sake of the margin.

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

Nevertheless, there is three

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

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

And then the third modification we are pursuing is installing additional large fans that we have secured from our Perry facility. These were nuclear safety grade fans that had been procured and installed for Unit 2 at that site, and are no longer necessary as Unit 2 has been subsequently abandoned, so we have brought those to the vendor for refurbishment. That's where I'm going now for modification, to install those in the room, and the plan is to have those operate based on temperature thermostat, and as room temperature rises, the fans would kick on and provide additional air coming to the room. Once we have reached that stage, we think we will have good deal of margin in the capabilities, but as it is now the HVAC system does not have the margin it needs.

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

MR. POWERS: Right.

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

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

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

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

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

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

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

MR. PASSEHL: Thank you.

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

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

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

Subsequent to that, with the testing program that's been done at the site that identified failures of several of the relays on our root cause analysis and systemic condition corrective action program indicated that there was a manufacturing issue with some of the relays, and also the application of the relay for the voltage and current that they were applied to was a problem. And subsequent to that, the original relays that we had removed from the system and we removed the relays because of their age, and we have seen several age-related failures.

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

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

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

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

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

MR. POWERS: Sure. We have done some significant upgrades to the calculation control program, for example, in the program how we maintain calculations and how we revise them, what the criteria is for revision, and much tighter controls applied to changes within the plant and how calculations are updated. One of the things that we found when we came on-site last year is the calculations at the site were essentially under the control of the disciplines in their areas, on the floor, available file cabinets, but we hadn't gone the extra step at our Davis-Besse site of coming up with an electronic calculation index, for example, and centralized control for document control function of the calculations, and so we are moving towards that now. So overall the program for control of calculations both procedurally, and just the physical control and accessibility is being upgraded at the site, and so there is a number of program improvements that are being made in this area.

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

MR. RULAND: Thank you.

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

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

But there are selected technical issues that we are working through that are below the level of these four that we feel are bounded by the schedule for these four, and those are tracked both on a top priority list, engineer top 20 list, for example, at the site has just come up, are evaluated and then subsequently resolutions are identified. They drop down the list, and we have made a significant change to the site probably since the last time you were there, Marty, in terms of how we are controlling the work. We have been working from a corrective action program, essentially working through the lists of issues, working with a schedule.

Corrective action program applies to get issues done as we worked off the bulk original number, first identification of issues in discovery and investigation and working off resolutions to the issues. At this stage we are coming out of the forest and being able to see individual trees. And so the engineering top 20 list, the modification lists are now prepared, and we have assigned Mike Foss at the site, who is one of our directors at the site. He has been assigned as restart director, and one of his primary functions is to help in the driving of these issues. And if you were to visit now, the conference room 209-210 out in the front building, which we refer to now as the plant support center, that room has been converted into a command center where all the various engineering issues that were reviewed everyday, we have review meetings about the issue with owners, they are required to have fragments, lay out the resolution. The issue management team provides some questioning on considerations that they have got, they are there prepared to answer the questions about the issues, that the issue is going to be successfully resolved on a timely basis.

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

MR. FARBER: Thank you.

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

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

And so at the time that that response was made, the assessments were done that -- on the status of calculations, and that response credited calculation improvements program and system description development projects that were done in the mid-80s, during the mid-1980 term out at the site, and there was a lot of engineering activities at that time, and a lot of that was captured in system design descriptions and in calculations that were prepared.

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

And we also committed as part of this 50.54(f) to initiate a design basis 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.

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

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

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

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

Subsequently we got into the latent issues reviews, our system health reviews, safety function validation project reviews, all of those projects would be as described, found similar weaknesses in design basis calculations, and we have upgraded a number of those calculations, and in particular, you know, I described earlier Ken Byrd's accident analysis area, we have done a lot of global calculations for the various systems and heat load calculations and performance calculations, and we found that, yes, all this work is kind of revalidated, that there were weaknesses in calculations. Largely the systems have been demonstrated to be nonoperable through our assessments of all the additional issues that have been raised and were adequate to support operability.

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

Notwithstanding that, we also feel that we need to do a supplemental response to the letter to describe what we have done over the past 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 50.54(f) letter?

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

MR. BYRD: All of the open items were put into the corrective action program as ~~conditional~~ condition reports, and so all of those condition reports have been categorized and -- with any other condition report, so every open item that is categorized as required for restart will be complete by the appropriate mode for restart.

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

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

MR. RULAND: Both.

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

MR. BYRD: What percentage had been completed then?

MR. GROBE: How many items were there?

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 program, and essentially all of them are still open; is that what I heard?

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

MR. RULAND: Essentially all of them?

MR. BYRD: But --

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

MR. GROBE: Can I ask a follow-up question? If I understand correctly, I think I heard what you said, that is that a specific issue clearly resulted in an operability concern, then it was put into the corrective action system? If it simply asks an engineering question, complicated engineering question that required analysis and further follow-up, but it wasn't obvious that was an operability then if it was not put in the correct place under one of these two things, corrective action tracking system or a DVB tracking program database.

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

Then there was the third group of 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.

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

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

MR. GROBE: I mean, that's what these kinds of reviews do, they generate questions, okay. Now, that was on -- I think on Slide 32, that's where you described those, just so that everybody was following where I was at. Could you, on Slide 33 it said completion of open items had less than adequate priority. Could you talk about that again, make sure I understand what you're saying.

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

Now, we don't think that the appropriate priority was placed on finishing up this effort. It was a major commitment that we should have followed through on. In fact, last year we found the condition that we were in, we reactivated the project, applied a lot more resources to get assistance to get these done, and finished up many of the calculations in the course of last year. So there was -- we didn't have adequate priority review to get the projects done.

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

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

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

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

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

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

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

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

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

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

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

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

MR. POWERS: No, it does not. This is just a characterization of looking at the 54 letter, what it said would be done relative to what was done, each of the design basis validation programs would be done and issues would be put into tracking systems based on their priority and a follow-up letter gave us a status of that in terms of 50 significant issues, 12 of which went into CRs and the balance of which went into the corrective action tracking system, and the remainder were in a third level of the system, and with a projected date to complete those actions at the end of 2000. So when we make this statement on here, that is all it's intended to imply, Jack. It does not in my view constitute any sort of statement on acceptability.

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

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

So let's wrap this up, we appreciate your time today. We have certainly -- I think we have spent a lot of time talking about what isn't done yet. Suffice it to say that six months ago we were here, I believe we presented our grand plan, if you will, for attacking all of the open questions from a design perspective, and there's been a tremendous amount of work that has been done. There have been a lot of issues that have been satisfactorily resolved, the bulk of them have been satisfactorily resolved, whether it's through the safety function validation program or self-assessment process, the topical area reviews, latent issue reviews and various programs that we have had out there.

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

That is the -- I think the most significant loose end that we have out there. But we have really changed the design documentation and design of this ~~plan~~ plant, and it's been a very robust challenge, if you will, and I think when the dust settles again, the completion of the remaining actions that we have talked about here today that we will be able to establish that there is reasonable assurance that the plant systems have been able to perform their intended safety functions.

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

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

MR. COWARD: I guess we were talking coming out on the plane, and I had, I'm not sure I'd use the word pleasure, but the opportunity to participate in the number of the plants that have been through this process going back to probably the beginning of the late '80s at Nine Mile Point was the first one I was involved in and if you go also to Salem, Crystal River, Cooper, most of the ones I have been involved with, if you go look at those, I told Gary what's interesting about Davis-Besse is there is certainly a lot of dust and dirt that's been kicked up in the last 12 months, been tremendous amounts of activity, lots of people have looked at lots of paper, lots of people have generated lots of paper.

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

Are we having to build all new safety-related enclosures and put in new safety-related equipment like they did at Crystal River? I see Tom Payne who went through the whole Salem experience with me, all kinds of modifications to the plant, you know what, I think when we talked here back in December, that what we had was we had a bunch of calculations that probably could have been better, I don't think anybody disputes that. Were there some unsubstantiated assumptions? Yes. Were there some -- did they look at perhaps all of the bounding conditions directly in the calc? No. But in general the plant is safe and the design is sound.

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

So the big picture, you know, I think that, you know, having been involved in some of these restarts, and I know Marty saw us going through the stuff in January, we dug into this real hard, and you look at like the -- some of the decay heat removal/LP stuff, what is the biggest issue is that, you know, there is a potential concern with boron precipitation control back-up method, all right, we are not talking about, you know, primary safety mitigating functions.

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

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

MR. GROBE: Thanks. Any other questions?

(No response.)

MR. GROBE: Okay. No others.

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.

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

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

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

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

multiple additional weeks of effort over the next
period of time.
So I think this has been very informative, I have learned some things here today that I didn't know, and I have got about 30 questions on the front page of your book here, it's covered with handwriting, so we have got a lot of information we need here and it's been helpful for me, and I'm sure the others sitting here at the table, to put in focus where we are at, and where we need to go. I encourage you to figure that even has the potential to be a licensing activity that is going to require us to find resources at headquarters to address, for example, the -- you called me last Thursday morning when it looked like there was a potential for modifying the HPI pump, might be on a competing level with replacement of the pump, and I initiated activities in headquarters to see where we would find the resources to provide an adequate review of that type of a design if you decide to go forward with that so that Pat has

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

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

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

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

MR. GROBE: Christine?

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

(Whereupon, a recess was

had, after which the meeting
hearing was resumed as
follows:)

MS. LIPA: We are just about ready to continue here. What we'd like to do at this point is open it up for questions or comments from members of the public that they have for the N.R.C. folks that are here at headquarters, and so let's begin with that. If there is anybody in the room here that has a comment or question, if they could come up. We have a microphone over on the podium over there across the room.

Is there anybody that has any questions?

(No response.)

MS. LIPA: Is there anybody at headquarters? Is your room open to the public?

MR. MENDIOLA: This is Tony, and yeah, we have somebody with a question.

MR. HORNER: Dan Horner from McGraw-Hill. I guess I want to -- I didn't catch one piece at the 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?

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

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

MS. LIPA: If you could spell your name,

sir.
MR. HORNER: I'm sorry, Daniel H-o-r-n-e-r, Daniel Horner.
MS. LIPA: Thank you. Any other questions from headquarters?
MR. MENDIOLA: No other questions from headquarters.
MS. LIPA: Now would be time for anybody on the phone lines who has a question to work through the instructions that the operator will give you.
THE OPERATOR: If you would like to ask a question, please press Star 1 on your touch-tone phone.
(No response.)
THE OPERATOR: Currently there are no questions.
MS. LIPA: Okay, thank you. Well, if there are no further questions, that concludes our meeting. And, everybody, thank you for coming.
MR. LEIDICK: Thank you, Christine, I appreciate it.
(Which were all the

proceedings had and
testimony taken in the
above-entitled matter at
the time and place
aforesaid.)

STATE OF ILLINOIS)
) SS.
COUNTY OF KANE)

I, ELLEN E. PICCONY, a Notary Public duly qualified and commissioned for the State of Illinois, County of Kane, do hereby certify that subject to the usual terms and conditions of County Court Reporters, Inc., I reported in shorthand the proceedings had and testimony taken at the hearing of the above-entitled cause, and that the foregoing transcript is a true, correct and complete report of the entire testimony so taken at the time and place hereinabove set forth.

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