BEFORE THE UNITED STATES
NUCLEAR REGULATORY COMMISSION

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

REPORT OF PROCEEDINGS
December 23, 2002
9:00 A.M.

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

PRESENT ON BEHALF OF N.R.C.:

MR. JACK GROBE, Hearing Officer;

MR. MARTIN J. FARBER;

MR. MEL HOLMBERG; and

MR. ROY CANIANO.

PRESENT ON BEHALF OF DAVIS-BESSE:

MR. LEW ~~MYER~~ MYERS;

MR. JIM POWERS;

MR. ROBERT SCHRAUDER;

MR. GARY LEIDICH;
MR. MIKE RODER;
MR. JOHN GRABNAR;
MR. KENDALL BYRD;
MR. BOB COWARD;
MR. ALEX ZARECHMAK;
MR. STEVE FRANTZ;
MR. PAT MC CLUSKEY; and
MR. KEVIN SPENCER.

ALSO PRESENT:

MR. DAVID PASSEHL;
MR. TOM HENRY;
MR. JOE PETRICH;
MR. BRIAN RENWICK;
MR. CHECK ~~ZOIO~~ ZOIA;
MR. TIM STEADHAM;
MR. GEOFFREY WRIGHT;
MS. DANEIRA MELENDEZ;
MR. ROLAND LICKUS;
MR. TODD SCHNEIDER;
MR. TOM BILIK; and
MR. SHAWN PERGANDE.

MS. HOUSEMAN: Good morning and welcome to the Nuclear Regulatory Commission conference call. Participants will be able to listen in on the question and answer portion of the conference. Your host for today is Cheryl Houseman. You may begin when ready.

MR. GROBE: Thank you very much. My name is Jack Grobe. I'd like to welcome First Energy and N.R.C. participants and the public from various locations to this meeting this morning. I'm the chairman of the N.R.C. oversight for the Davis-Besse facility. Over the past several months, First Energy has been reviewing three systems to evaluate the design and operating condition of those systems.

In addition, the N.R.C. has performed a safety system design and performance capability inspection to independently evaluate three systems, one already reviewed by First Energy, an assessment of the adequacy of the First Energy reviews. The reviews of each of those systems by both the N.R.C. and First Energy

revealed substantive design questions regarding the operation of those systems.

We appreciate First Energy providing the N.R.C. with your resolution of system health assurance plan design issues documents allowing the N.R.C. staff to better prepare for this matter. The purpose of today's meeting is to discuss First Energy's plan to resolve the design questions and to assure that through the efficiency it's well understood.

This meeting between N.R.C. and First Energy is open to public observation here in the N.R.C.'s Region III office in Lisle, Illinois, and in the N.R.C. headquarters offices in Rockville, Maryland, through video conferencing and through a teleconference bridge line where members of the public can listen in on the bridge.

After the N.R.C.'s discussions today with First Energy are completed, there will be opportunities for members of the public here and through the telephone conference bridge to ask questions of the N.R.C. or make comments. We are

also having this meeting transcribed today to maintain a record of the meeting. The transcripts will be available on the N.R.C.'s web page several weeks after today's meeting. Copies of the First Energy hand-out are available in the back of this conference room and N.R.C. headquarters and on the N.R.C.'s web site. You may also see copies of the N.R.C.'s December public monthly newsletter. Also in our conference rooms are N.R.C. meeting feedback forms that you can fill out and provide feedback on format, content or any other aspect of these meetings so that we can improve the quality of our public meetings.

At this time I'd like to introduce the rest of the N.R.C. staff that is here today and also in headquarters, and then have Lew introduce your staff here at the table.

MR. FARBER: My name is Martin Farber, division of reactive safety, Region III.

MR. HOLMBERG: My name is Mel Holmberg.

MR. GROBE: And I'm glad -- you didn't have your microphone on, that reminded me to make sure

that everybody has these microphones close to them and turned on. There is a little green LED that would indicate the microphone is on. Most of them should be on.

Also here for the N.R.C. in the audience, please go ahead.

MR. ~~ZOIO~~ ZOIA: Chuck ~~ZOIO~~ ZOIA, DRS.

MR. STEADHAM: Tim Steadham, DRS.

MR. PASSEHL: I'm David Passehl, DRS.

MR. LICKUS: Roland Lickus, state and government affairs.

TOM BILIK: Tom Bilik, DRS.

MS. MELENDEZ: Daniera Melendez.

MR. WRIGHT: Geoff Wright, reactor projects.

MR. GROBE: Okay. Could the N.R.C. headquarters please introduce themselves.

MR. HOPKINS: Yes, John Hopkins, project manager for NRRI. I'm expecting Bill Dean to join us though he's not here right now.

MR. GROBE: Very good, thank you. Also behind us who I neglected to introduce is Roy Caniano, Deputy Director of Reactor Safety. And

our stenographer is Ellen Piccony, welcome.

Lew, at this time would you like to introduce yourself.

MR. ~~MYER~~ MYERS: Thank you, Jack, we're glad to be here today. At the table we have Ken Byrd, he's with our nuclear engineer group. John Grabner is our manager of design engineering; Mike Roder, my operations manager, I'm glad to have him with us. I'm Lew ~~MYER~~ MYERS, chief operating officer of First Energy. To my right is Gary Leidich, executive VP of First Energy. Next to him is Bob Schrauder, our director of support normally, but he's the project engineer on this issue and helped us work through this. And Jim Powers is a director of engineering next to him. We have several people along the back row. Why don't you stand up back here. Kevin Spencer, Steve Frantz, Pat McCluskey, Alex Zarechmak and Bob Coward.

MR. GROBE: Okay, very good. I think that completes our introductions. One person I did not hear introduce themselves was ~~Victoria~~ Viktoria ~~Midling~~ Mitlyng. ~~Victoria~~ Viktoria is our public affairs officer here in

Region III, and she is always available to interface with the public.

At this time, Lew, I'd like to turn the meeting over to you for your presentation.

MR. ~~MYER~~ MYERS: Gary is going to start out.

MR. LEIDICH: Refer to the slides on Page 4, and just from a corporate perspective, set the appropriate tone for the meeting, as well as this effort going forward. The company, First Energy, set the standard of returning Davis-Besse back to service in a safe and reliable manner and that includes system health assurance, which is what we are here to talk about today. And, again, our overall focus is to do the job right the first time to regain the confidence of all our customers, and we are certainly committed to meet that challenge. So really I'm here today to offer support from a corporate perspective and recognize that we are here to do this job appropriately, and certainly welcome your input on our plan for system health assurance and the design issues that have been identified.

So with that I'm going to turn to it over to our team, starting with Lew who will go through the desired outcomes, and we will go from there.

MR. ~~MYER~~ MYERS: We are here today to provide you an update on the Davis-Besse action plan to resolve design questions identified during the system health assurance plan reviews. We told you that we were evaluating issues from our system readiness reviews and create the scope as necessary through these five latent issues reviews and a total of three system reviews. We are here to obtain your feedback on our plan going forward today.

The system health -- our objective, the objective to the system health building block, if you will, was to provide system assurance to First Energy, the regulators and the general public that the systems at Davis-Besse would perform these safety and accident mitigation functions. That was the original objective of the building block. Since that time that we started the six building blocks, the seventh one will be the restart action

plan. We in the system health really thought there would be three systems, we picked five latent issue systems to look at, and we picked the systems like service water and component cooling water because of recent experience. And we thought that would provide us significant insight.

We found questions concerning design calculations and our ability to go back and look at those calculations, the rigors of the calculations, and we found some questions in those areas. Most of those were primarily questions from the prior to 1990 time frame. There weren't recent issues. We found that the calcs sometimes were different, but we have been able to find the calcs and they were very much in line with the 54(f) letter that we provided to the regulators some time ago.

Today we found nothing in these calculations that we were not able to find or were not bounded easily. And to date we found nothing that would indicate that our systems at our Davis-Besse plant were not either able to perform their design functions or operable to this date for

those questions we looked at in the five systems.

So once again, we always told you that we would take a broad-based look. Our plan looks at systems with questions. We are going to go back and look at systems which have a greater than one percent core damage risk frequency. What that does is give us 99 percent confidence we won't find anything later on in latent issues reviews that are significant.

Our plan has three paths. The first path is an operability review. We are taking each and every CR and we are talking about that today, and performing what we call operability review on the CRs we have generated as part of the latent issues. And our supervisor will either declare the system operable or inoperable, based on their reviews of the information.

We will then validate risk significance of the safety functions. And then finally we are looking at the issues from a programmatic standpoint. We always told you we'd take the CRs that we wrote during latent issues and

put them together and look at cross-cutting issues on the other systems.

These three paths, we feel that if we take ten additional systems and provide reasonable assurance of the conditions of the Davis-Besse plant and assure that it's safe and reliable, if we find additional issues, we will take additional corrective actions before restart. But our intention is to -- we believe that we will find that our reviews were bound, the systems, and we told you that we will continue to move forward with latent issue reviews after our restart of our plan. We think that that will provide us and the public good, reasonable assurance.

With that I'd like to turn it over to Jim Powers.

MR. POWERS: Thank you, Lew. What I'd like to do this morning is first give a little historical perspective on the maintenance of the licensing basis at Davis-Besse over the years, and then proceed to talk a little bit about our system health building block and activities we have

undertaken as part of the current recovery of the plant.

Behind me on the easel and in your hand-outs there is a design basis assessment timeline that we prepared, and it shows along the top of the timeline the plant operations since the mid 1980s time frame up until today. And along the bottom it shows the number of assessments that have been performed both by the Davis-Besse staff, as well as the N.R.C. staff over the years.

We started in the 1985 time frame because this is the time frame when the plant went through a recovery effort from the offspeed water event that occurred in that time frame. And we proceeded from there because we wanted to see from the long-range historical look on what type of activities had transpired since that time because we know that a lot of attention was focused on the plant in the mid '80s, both from the owner perspective as well as the regulator perspective.

In fact, a course of action was prepared in that time frame that encompassed many

activities, a lot of them were related to engineering. What I'd like to focus on is the bottom of the chart and the activities that transpired over the years and the number of sets that were performed. We list them on the slides -- on Slide No. 11 that is shown here. Our independent safety engineering group performed vertical slices of systems, and that starts in 1989, we show a station and instrument air system vertical slice assessment; 1991, emergency diesel generators; 1992, steam generators; 1993, service water system. And this is particularly important because service water system is one of the ones we are looking at in detail today. In 1994 instrument and controls, and 1995, offspeed water system.

And as you go across the bottom of the timeline you can see that the surveillance and assessment of the design basis has been ongoing and continuous. Then we look at N.R.C. reviews that were performed, and these are typically detailed inspections of systems and their functional capability, and also design basis supporting them.

In 1992, electrical distribution system functional inspection, EDSFI was performed. In 1993 a service water inspection that was referred to, this was a very detailed and hard hitting assessment of service water capability and appraisal performance, and in the 1997 high-pressure injection and low-pressure injection systems, and what was referred to as an architect/engineer inspection. This inspection consisted of teams of engineers from architect/engineer corporations that were led by the N.R.C. inspector looking in detail at these systems over a number of weeks to go into the design basis specifically to see how the licensees were maintaining the design basis over the years.

And then in 2000 safety system design performance capability inspection was performed at the plant. And so these activities were ongoing over time, and I think if you look at the chart you will see that it's a continuum of assessments and inspection.

And the chart is available at the front here for those of you who would like to come

take a look at it, and there is also hand-outs that detail it.

The results of those assessments, importantly, consistently showed that the systems were operable and capable of performing safety functions. Any time that we have an assessment or an inspection, we typically develop questions, engineers come to the site, they are independent, they haven't participated in the engineer activities of the site, and they ask questions. We wrote those down in our corrective action program, and then we evaluate them and answer them. But we found over the past the systems had been determined to be operable and functional.

We did also identify some weaknesses in calculations as a part of those inspection assessments, and, in fact, had activities ongoing at the site to improve our calculations and the quality and continuous improvements in those areas over the years. Another thing to point out is as the assessment and inspection activities have gone on over the years at the plant, both the inspectors

and the engineers learn new things, new perspectives on the systems, and we continue to improve our technology and our methodologies improve and the questions get tougher, and part of that contributes to some of the questions we have today.

When we look at a plant that's been operating for 25 years and we apply today's understandings, today's technology and methodologies to the original -- in some cases the original calculations for the plant, there are questions and areas for improvement that are identified, and that is consistent with Davis-Besse, as well as other plants in the industry.

MR. ~~MYER~~ MYERS: When we went back and looked at all questions on the calc and compared what we were seeing at our plant and throughout the industry, we were very consistent with our operational plants.

MR. POWERS: That's right. I would say that is correct, Lew. When we have an inspection, one

of our internal inspections done and calculations on design basis information, the type of questions we see today are typical of what's been -- we have seen at other plants and at our plants in the industry. You typically have a number of questions that need to be answered, usually takes some time to work through the analysis, and in some cases calculations need to be revised to answer the questions, and that's what we are doing right now, and it's consistent with what occurred at other plants.

The resulting remedial actions from many of these inspection assessments were a review of our updated safety analysis report that was done in 1996 and design basis validation program, which was performed in 1997 to 1999. The updated safety analysis report is really a compendium of all the license bases for the plant and reflect the important design basis that is related to safety function of our systems. And so it's a very extended review that is done when you look at the use.

The design basis validation program looked at three systems which comprise some of the most important functions in the plant from a safety perspective, and we looked at all the calculations in support of those functions in the 1997 to 1999 time frame. These activities were part of a response to a request for information that was issued pursuant to 10 CFR ~~1054.F~~ 50.54F by the N.R.C. that all utilities in the time frame in the mid '90s were requested to prepare an assessment and response on the maintenance of their design basis of plants and how it was reflected in the procedures that tested and surveilled the plant. And we have performed that assessment, along with all of the other licensees in the country, and these two activities, the review of the USAR and our design basis validation program were two of the activities that we performed in support of that. And there were commitments from the design basis validation program to work through, corrective actions that we developed, and that improving calculations, weaknesses in calculations,

identified issues, and we were in the process of working through those improvement programs.

MR. GROBE: Are you going to get into more detail later, or is Bob, on the scope of those prior activities and what contributions they provide to you on comfort level and the extent of conditions bounded?

MR. POWERS: Sure, I can comment on that. Well, particularly in the case of the design basis validation, we were using portions of the design base validation project to provide assurance on extended condition, and with respect to that project did assess areas that have -- where questions currently have been raised, then we will be able to use it and take credit for it, for extended condition assessments. If it did not accept a particular question that's been raised, we will not be able to use it, but Bob will get into some more detail on the safety function validation program that we have prepared, and then we will walk through some detail on that.

MR. ~~MYER~~ MYERS: Is it fair to say if you go back

and look at the 50.54 that was submitted and with the plan we laid out, that the type of questions that we found on the five latent issue reviews and what N.R.C. found are similar?

MR. POWERS: Yes, the -- what Lew is referring to is our 54(f) letter response, we acknowledged at that time that there were weaknesses in calculations and prepared our design basis validation program, launched into that in '97 to improve of the calculations, but we also in that letter of response point out that there was several areas which we did not specifically assess in the response, because it was believed that the assessments and inspections that we had undergone relatively recently to that time frame substantially demonstrated that the programs were healthy.

Those were programs of HELB, environmental qualifications, seismic qualification, Appendix R and flooding, for example, and when we have gone through this most recent system health building block and done our

latent issues reviews and systems health maintenance reviews, we have developed some questions in those areas, started out as areas of corrective significance in our assessment of the questions that have been asked, and so it is consistent that we find some areas of question there, because we did not poke into those in a lot of detail as part of the 54(f) letter response.

So what we are seeing is fairly consistent to what was submitted in the 54(f) response.

MR. ~~MYER~~ MYERS: I guess what I'm trying to tell you is I think we did a pretty good job in the 50.54(f) letter. I'm not sure that we did as good a job of following through after we submitted the letter. But when I read that and I read the issues that I see coming out of our recent reviews, they're basically the same in my mind

MR. POWERS: That's right. One of the important aspects of the response to the 54(f) letter and also our design base validation program is that we had a number of calculations that needed

to be either revised or prepared, that we found areas that needed continued improvement, and there were 250 calculations that fell under this category that were ongoing, to have those calculations finished up as part of our corrective action.

That project was not expedited as aggressively as it appropriately should have been. We determined that when we came on site this year, and reviewed our current numbers in this area. This was back in the April time frame, and we authorized the resources to complete that project by the end of this year, and Sergeant & Lundy has been helping us with that process in issuing over 250 calculations. So that is an area where we could have done better from a schedule perspective as a project that didn't get completed as quickly as we would have desired, but it is being expedited now.

MR. HOLMBERG: Mel Holmberg, Region III. You mentioned the other issues that were not specifically looked at very in-depth in the 50.54, I think HELB, EQ, seismic qualification, fire

protection. What was your basis for whatever conclusions you had in those areas?

MR. POWERS: In the letter of response what we -- the basis for our conclusion was that assessments and inspections had been performed near term to the 54(f) letter response. Those are areas that were relatively active at that time, had been surveilled, and we felt that that was a satisfactory assessment at that time.

MR. HOLMBERG: So what types -- can you give me examples of what type of things you say you surveilled, or --

MR. POWERS: Inspection, for example N.R.C. inspection in the EQ area for self-assessment by our quality organization in that area.

MR. HOLMBERG: Okay.

MR. POWERS: There had been documented audits and inspection assessments of those programs that we felt substantially characterized their status at that time.

MR. HOLMBERG: Thanks.

MR. ~~MYER~~ MYERS: EQ, if you go back and look on the

timeline we gave you, it shows us inspections and areas where we all looked at the EQ, so if you go back and say was that program healthy, we would say yes, based on the results of that. So we tried to provide a lot of that history here in that timeline.

MR. GROBE: I have got a number questions regarding the historical review, but, Jim, I think I'd like you to continue your presentation and we will hold them for the end of your section.

MR. POWERS: Okay. So that's a look back on how the design basis has been maintained and surveilled at Davis-Besse over the years.

Now, moving into today's time frame, the system health assurance plan that Lew described in 2002 we began the system health assurance plan I referred to as a building block or restart of the plant. And there was three reviews actually that were prepared as part of this building block.

The first was an operational readiness review, and this was a review of the system engineer chaired by the plant manager of

issues that related to their systems that they had been carrying over the years that they wanted to get done, and giving them an opportunity to voice their concerns to the plant manager.

And there were a number of projects that emerged from that of things that were important to get done in the plant, material condition issues for their systems, and we approved a good deal of work to proceed as a result of those reviews. And I think it also gave the -- from the human, you know, perspective, it gave the responsible system engineers an opportunity to sit down with the plant manager and have a direct voice in the plant management and their desires to improve the health of their systems.

The next was a system health readiness review level. We went into this looking at our maintenance rules, risk significant systems. 31 of those -- of the 36 systems were included at this level of reviewing. We went and looked at modifications back to the 1990 time frame, because this is the year in which the modification for the

service structure inspection port openings was initially submitted and subsequently deferred from that time, and so we wanted to take a look and see if there was any other modifications, either open or closed, that needed to be done or appropriately done, and gave the engineer an opportunity to look at that.

We also looked at work orders and corrective actions since the 1995 time frame. That 1995 time frame was selected because that was subsequent to a management shift from the Davis-Besse site over to the Perry site, and we wanted to take a look to see if there was any deviation from the programs, from effectiveness from 1995 going forward in those areas.

And we also looked at the testing programs for these systems to be sure that the maintenance rules for significant functions were tested appropriately. So they were fairly extensive reviews, each one is in a three-inch binder of working material, and in some cases two binders worth of materials. So it's by no means a

shallow review.

And lastly, our latent issues reviews. And for those of you who have not participated in the dialogue up to now, the latent issues is a vertical slice process that we initiated at the Beaver Valley plant and was seen as very beneficial there in terms of digging out issues that may be latent, buried in a plant system, either in the hardware or in the software, the paperwork for the system.

A team goes through and looks for issues that may have been residing below the surface and brings those out so they can be resolved. It's a very effective process, and we have improved on it actually at Davis-Besse, a little more detail on operational readiness reviews.

These were completed, they were done very early on, in fact in the May time frame, identified whether the systems have any known significant deficiencies and corrective actions to bring those out, bring them forward and deal with

them, selected systems relative to the maintenance rule performance criteria material, condition and operator. So this was a fairly broad selection process that went into these systems. Any one of these areas where there was known to be problems, the systems were brought up and brought forward for a committee review. The committee was chaired by the plant manager. And there was also substantial maintenance and operations support for it.

In fact, Mike Roder, our operations manager sat in on the planning of these meetings, and there was a number of issues that came up in the area of, for example, operator burdens or material conditions of the systems that were addressed. And Mike is here if -- do you have anything to say on that?

MR. RODER: Yeah, thanks, Jim. There was an -- now this early on in the time frame that we sat in on these meetings, and it was good ownership by the system engineers, a lot of activities that were added to the schedule to resolve. I brought a couple of examples we worked and several leads on

transformers and corrected some deficiencies there. Breakers in the switch yard were overhauled. Some of the air compressors, power supplies, I think we changed out 14 enunciator power supplies, all strengthening the operation of the plant. Several work arounds and several operator burden activities were also included, remodified the fuel handling bridge, components to strengthen the operation of the plant, so there was a lot of good ownership, good dialogue from the system engineers and operations plant manager to strengthen our position and increase the reliability and health of the various systems.

Another thing, Jim, it wasn't all the systems, there was a couple of cross-cutting issues as we went there. We noticed there was issues with power supplies, we discussed power supplies in that context of air operated valves, motor operated valves, and corrosion was another system, if you will, that was discussed, and instrument root valve, we noticed there was an issue with root valves. There was some vertical

slices through the system, if you will.

MR. POWERS: Thanks.

MR. RODER: So there were a number of projects that we -- high pressure injection were refurbished.

MR. POWERS: There were some major items that the engineers had sought to get done.

Next, on Slide 16, the system health readiness reviews. We list out the review scheme that was performed, the test results of functionality, the support functionality modifications since the 1990s, corrective actions, work orders since the middle of the 1990s, and then system walkdowns is one aspect of it that I didn't mention. And that is, we got out on each one of these 31 systems and walked them down to the multidiscipline team, consisting of maintenance, operations, system engineering and design engineering and management.

MR. LEIDICH: I participated in those as well, and I can assure you these were a high level of detail in the field, and we were going as far as

identifying rust in electrical cabinets and a variety of those kinds of things, so suffice it to say we got a very comprehensive review of the systems condition from a plant perspective, so the threshold for identification of problems, I think, took a different tone at Davis-Besse. As a result, we have identified a lot of condition reports on these systems at both thresholds, which represents a very substantial amount of work that we have been tangling with in this outage, but I think it's another indicator of our philosophy going forward here.

MR. POWERS: I agree. I believe there was a significant change in the plant that was achieved. You were asking the engineers and the maintenance staff and operations to work together and walk by equipment in the plant that they have been walking by every day for years and critically look at it and ask them is it safe and is it acceptable, and it's a 25-year-old plant, so you will find some corrosion of supports, for example, and I'm talking about minor surface corrosion, rust if you will.

You were going to find small questions of material condition or cleanliness, housekeeping that perhaps had been passed over before, but now we're critically asking questions, and much of that was entered into our corrective action process, and particularly getting off the beaten path and look around behind the equipment, behind cabinets, inside cabinets and poke around. And it was very beneficial in terms of changing culture and standards.

MR. ~~MYER~~ MYERS: Let me take this a second. You know, if you are going to look, you know, I think what we have concluded so far, we have looked at our systems every way throughout history, through -- that is what our timeline talks about, and if you look at our 50.54(f) letter response, I think that was done quite well.

The reason I spent some time on that a while ago is I don't think our response of that was as good as it should have been. I want to make that clear.

You're going to look at overall

material position of our Davis-Besse plant from an operations standpoint and maintenance rule standpoint, stuff like that, go back and read the report, there was a 25 percent decrease in the last cycle in the number of A-1 systems from a maintenance rule standpoint, which once again indicates that -- and we have said that before -- the plant was in fairly good material condition when we brought down -- we know we -- when we walk around the plant, you know, the plant material condition looks pretty good, and additionally we brought in some -- several outside teams of people, executives from our plants, our ROP cabinet members that we have in our restart oversight panel, and we have had them out in the plant, and I know you have been out there, and actually the material condition of the plant appears to be quite good.

That is my overall assessment of the plant, and my experience is that if you look at the physical, material condition of the plant, the material condition of it is quite good in our plant, and that is the feedback we have received

from everything we have looked at, and that's what I said going into the building block plans, and that is what we still believe to be true. There are these design type questions that have to do with calcs, mostly latency issues, and I think that is the meat of what we're here for. But I think just to summarize, we did go over all material condition of the plant, we addressed that quite good.

MR. POWERS: And so the goal for the system health assurance plan was to provide confidence that the systems can perform their function. And on Slide 17 we talk about the latent issue review in a bit more detail. We selected five systems to look at in great detail to assess down through the design basis of the system, the design calculation, what the status of the systems were. That included the reactor coolant system, service water system and off-speed water system, component cooling water and the emergency diesel generators. And those were selected for a variety of reasons, some due to volume of involvement with our reactor degradation

issue, others were due to issues from our quality assurance assessments of the systems, and others were selected because of their contributions to safety function at the plant. And we thought there was a core group of systems that would really tell us a good picture on what the status was of the deep system health.

We verified design bases as part of these reviews, going back and looking that the calculations were in place to support the safety functions and the testing program of the safety programs. We assessed in all 31 different system attributes, so we asked a lot of questions going through this in terms of given calculations, quality of the calculations, electrical calculations, mechanical safety analysis, environmental qualifications, there were a lot of checks that were made. And we also reviewed various data sources.

There were teams working on these, I'd say on average probably eight individuals, engineers, experienced engineers, I might add that

have worked at other plants who have gone through this level of detail system review and spent several months going through the review process and really digging through all the information available, and then performing comprehensive walkdowns of these systems as well in the field, and both were material condition and configuration perspective.

In addition to latent issues, we also prepared self-assessments of calculations and high pressure injection system and the 4160 vault distribution system. And this was looking at the calculations. In particular we felt that one of the areas that we had developed of corrective significance was in the calculations as we went through latent issues reviews, and so we prepared an assessment of the high pressure injection and 4160 systems. The N.R.C. also came and inspected I would add the service water system in detail and also high pressure injection on 4160 volt systems, and so that their findings were added to our discovery findings as well, and used to help set

direction in terms of what issues were of collective significance to us.

On Slide 18, the major accomplishment that we made at the site, we completed discovery in this area for system health assurance plan, and to us that was quite important. We started off on this track back in the early summer time frame, building our plant, doing our training, developing procedures and mobilizing industry expertise, and I feel we have some of the best in the industry in discovery type of activities help us and helping our engineers go through it. It was a very good learning process for our engineers, as well as helping us understand the status of systems in the plant.

We issued reports for both the latent issue and system health readiness reviews, and those were all issued to Mr. ~~MYER~~ MYERS. They are in his office taking up a lot of space on his conference table now as he calls in individual engineers and walks them through their report to gain a clearer understanding of what they did and

what their feelings are about their system, and also their feelings about activities that need to be done to support restart of the plant and then other activities that are in the category of improvement that can be made subsequent to restart.

They issued condition reports for all of the questions that were identified, and there was a large number of condition reports, and an important point that I'd like to make on the number of condition reports issued, when we commissioned the review teams to go off and do the system health reviews and the latent issues reviews, we brought in a number of contractor resources who were highly experienced at doing system reviews, but we told them we didn't want them to spend a lot of time searching for information and trying to answer questions, but rather we wanted to move expeditiously through discovery and sort of write their questions down on a condition report and move on, and we would research and answer that question subsequent to the identification. And they did that.

And what we are finding as we go through the evaluation and the research stage now on our condition reports is that in many cases there is an answer to the question, for example, a calculation is missing for an important parameter on a system. Given some time an engineer that is more familiar with the records retrieval process is able to find those calculations, and so there is a significant population of the condition reports which are being answered and being closed out and being determined to be not necessarily a significant issue.

We encouraged a questioning attitude going through the process, and we generated over 1,200 CRs, and that included both design calculation type questions, as well as operation questions, meaning material condition, hardware questions, procedure questions for operation of the equipment.

Our collective significance reviews which we committed to and always planned to do at the end of discovery identified some cross-cutting

issues, and we listed those out in our plan to go forward, and Bob Schrauder will talk to those a bit, and I mentioned those earlier. They are the HELB, environmental qualifications and seismic qualification, floods, Appendix R fire protection. The questions in those areas we felt merited some further review from a significance perspective.

The overall discrepancy ratio related to latent issue reviews was determined to be low. That is, for all the attributes that we checked as we went through this collecting calculations, drawings, manuals, procedures and just looking for consistency and looking for any errors that could be found, the number of errors that we found versus the number of checks made was low. And that is an arrangement of about three percent. So we are talking about a -- you know, the vast majority of things that were checked going through all documentation at the plants passed acceptably that level of scrutiny.

MR. ~~MYER~~ MYERS: How does that three percent rate, how does that compare to the industry when we do

this kind of cross-checking?

MR. POWERS: I would say when you get into this level of detail and the complexities of the business we are in, the engineering, this level of discrepancy not be expected. Every time we do that assessment, whether it's our own licensee, quality assurance or engineer assurance, personnel do assessments, questions are raised. Every time the N.R.C. comes in on an inspection, questions are raised. That's how we, each of us do our job, to raise those issues. And to have questions and discrepancies come up in the three percent range, I would say is probably consistent with what we would see on-line. Let me ask M.P.R., I think M.P.R. & Associates assisted us in assessment of some of these, and I would like Alex to perhaps describe his experience in some other plants that have gone through this type of review.

MR. ZARECHMAK: My name is Alex Zarechmak, M.P.R. & Associates. Thank you, Jim. We have been asked to participate from the beginning on this latent issue review process and advise First Energy

in how to structure and how to conduct it, and on the back end to assess some of the results, not unlike the experience at at least five other plants that have gone through similar kinds of system reviews.

In each case we tried to track not only the issues that we identified but to put in perspective the issues that we looked at to get a ratio of problems versus checks, and then frankly the three percent is probably in the lower range of the reviews that have been done in other plants. Clearly not something that you can scientifically prove and hang your hat on, but clearly not atypical of other places.

If could I comment, I guess the other thing that perhaps is a little bit different here, I'd like to point out is we literally -- First Energy literally put together an army of folks for these five systems, probably more intrusive and heavier hitting than some of the other places.

Each of the five systems, if I

recall right, had at least 10, and probably 12, and sometimes 15 people doing the reviews. Typically other places it's been fewer than that, so if you look at the number of plan hours that have gone into these inspections, compare that to the industry experience in other systems, it's pretty overwhelming. So in that sense as we look at how successful or with how much difficulty we have had to close out the questions that have been raised, it's probably not too surprising. You have this army of folks generating the questions, and frankly you don't have enough people on the other side answering the questions quickly enough or effectively enough.

MR. POWERS: Thank you, Alex.

Our preliminary evaluation and other questions indicates that there is relatively few that have potential safety consequences, given 1,200 -- over 1,200 condition reports issued. We have gone through, looked at potential safety consequence assessment, and M.P.R. Associates is assisting us with that and has done that at several

other sites, and what we are finding is that that large number of questions boils down to in the range of approximately 20, 24 questions. Bob is telling me 26 question areas that we need to do further detailed review on in terms of having potential safety consequences. So the number of potentially significant issues is -- again is relatively small, but those are the issues that we are focusing on and turning our detailed attention and evaluation analysis approaches on to assure that we answer those questions satisfactorily.

Now, we are currently performing operability determinations in areas to determine the actual impact of those questions, and that is an ongoing process. As Alex pointed out, we really unleashed an army of engineers and technicians on our systems to ask questions, and these engineers had come from actively doing that at other plants, and for those of you who are engineers, and for that matter most of you who have any sort of a job know that each time you do something, you learn and you move on to your next task and bring that

knowledge with you. So the cumulative knowledge in the industry in today's terms was brought to bear at Davis-Besse, and that did result in a lot of questions, and it's taking the technical staff at the station some time to go through those questions.

But we have developed a resolution plan, and we provided an advance copy to the staff here in the region last week for review, and Bob's going to walk through that and we will talk about that plan and some of the findings we have had and some of the suggestions we have had in disposition issues and some of the activities that are continuing to go on.

In summary from my section of the presentation, what I'd like to point out is that the findings that we have at the plant are consistent with the past historical findings that have been generated through system reviews over the years. The plant has not sat idle.

The plant has its design basis that is in command of a design base and responsible for

it, and it's been aggressively inspected and surveilled both by N.R.C. and the licensee over the years, and so the questions that are resulting are consistent with questions for our plant in the industry, will be consistent for operating plants in the industry right now, and we are going through our operability determinations process, and we assess these questions and we are working through them one by one to make sure we answer them thoroughly and completely, and the answers will be subject and -- available and subject to inspection.

And with that I'd like to turn it over to Bob Schrauder, whose taken on the project management role for resolution of the design questions.

MR. FARBER: Could you go back to the 1,200 CRs, just run through the process by which those were evaluated and tell me whether all 1,200 now have been evaluated, what is the status of that whole program? You have 26 open questions. Is that 26 potentially significant issues out of 1,200, or what is the percentage?

MR. POWERS: That is 26 potentially significant issues out of 1,200 is the way that I would characterize that, Marty. The process is that the condition reports are written which identified a question, the preparer will write it up. Then a supervisor takes a look at it and annotates it in his block to indicate his knowledge perhaps of the relative significance of the issue. There may be some background from the plant, knowledge that contributes to the identification of the issue and provides some clarity to it. So you have those initial preparation stages, and they issue it.

Going to the control room from there, if it affects equipment in the plant in any way, the control room makes an initial determination of operability, and the equipment is either operable or it's not. And based on that question, in some cases it's not clear. For example, there is a question on a calculation for a heat exchanger for a room cooler let's say, and the question needs to be answered. Right now it's just

a question, and so the operator will often times take what is called a mode change restraint against the condition report. He marks it right on the condition report that the plant cannot proceed through a given mode where that equipment must be operable, and the operator, the licensed operator requires that that question be answered to his satisfaction before it goes through the mode change.

And so the mode changes are listed and they are controlled, and the plant cannot be taken through a mode change until all of those condition reports tagged against it have been answered. So once the licensed operators have made that determination, then the condition report, the question if you will is out there to be answered. We have got these large numbers, over 1,200 that have been answered, and we have been assisted by contract organizations, Enercom being one of the primary ones we are utilizing to go through research work with our people, licensee people at the site, get that site-specific knowledge, go

through the records, history, answer the questions. That is an ongoing process.

And we are dealing with operability determination of each one of these issues as we go through that process, and we are observing it by mode change restraint, so each time we have a mode change in our schedule ahead of us, we are working off those CRs to make sure that we are prepared to make that mode change.

Now, the 26 issues out of the 1,200 are issues that in the assessment that was performed of all those CRs could potentially effect the -- have an affect on what we call the Chapter 15 analysis, which is -- Chapter 15 is a safety analysis chapter of our updated safety analysis report, and so we have gone through the screening process, we have determined that 26 out of over 1,200 questions could potentially affect that, and now we are in the process of bearing down on those issues to assess them and answer them, and I think Ken Byrd can provide us some detail on the type of issues that have arisen and a couple of cases where

we have had completion of those issues.

Ken, would you like to speak to them?

MR. BYRD: Of the 26 issues, some of the more significant ones included a question which was raised about our emergency core cooling system, heated exchangers, in particular the question was raised whether or not the heat transfer coefficient was not conservative enough. There was an initial question it could be off by 60 percent. Obviously this was a significant concern. We have had a review done by a third party, and based on that review, it appears that of the activities, the transfer coefficient was doing closer to our value, and we were able to resolve the issue after further review.

Another significant concern was in our ultimate heat sensor. There was the question about our -- the returns if we have a seismic event, if we had a failure of our normal return, all the service water was routed back to our deicing return, would we overheat the service water

system. At the time this question was raised, we didn't have an answer for it.

We have done a lot of further digging and determined that actually this was addressed, we had calculations and it had been addressed in our original safety analysis report, and apparently somehow inadvertently dropped from that section of the safety analysis report, but the calculations actually were in place. It was one of the things we had to dig around for a while to find information.

Another example which is not necessarily a calculational issue was a question about the current -- we have gone to three-way communications, as have a number of other plants. There was a question of how that would affect the timing of a number of our calculations, in particular the high energy line break calculations, and it was all of those. We have been working with operations, in fact we have gone and observed crews in the simulator to determine if the assumptions we made were credible. It appears that they are. We

will take some additional actions going forward to ensure that first of all we have identified all functions.

We have some more procedure guidance on that, and then in my area we are going to try to eliminate some of those if possible, so if we can do away with some of the assumptions, operator actions.

Another one of the other questions was actually service water flooding issue involved, this was actually not a design basis issue, it was of some significance because it was an issue where we would have failure, it would result in a loss of all our service water and also cause us to lose the ability to align our back-up service water pump, which is a safety-related pump.

After investigation of this question, which had been raised by one of the issue teams, we determined this was an issue of misreading of PNID and that the pipe didn't go there in fact, so that issue was resolved.

We had a calculational issue that

again that was one that came out of the latent issue review that had been previously identified in our design basis validation, and we have resolved that issue, and it was -- this appears to be documentation, although there was revision of calculation that was required.

Those are the kinds of issues. A couple of other good examples of ~~RECS~~ RCS activity, there was a question raised about the basis for our ~~RECS~~ RCS activity. There was a case of confusing presentation in the -- in our safety analysis, the historical numbers were confusing. We have gone back through the calculations. It's adequate, but we are going to have to revise some of the way the information was presented in our safety analysis report.

I think those are typical of some of the ones we have worked. There are 26 issues, we have not worked through all of them yet, some of them are still in the resolution process, some of the resolutions are not completed yet, but that is kind of the examples of what we are finding.

MR. SCHRAUDER: Let me take a crack at answering your question, because I'm not sure that we have yet.

MR. FARBER: You have generated a couple of additional questions, let's put it that way.

MR. SCHRAUDER: 1,200 CRs identifying -- as you know, the station review board looks, we categorize some of those as obviously not being required to be completed prior to restart, so some of them come out of that process. The others -- and the boiling down to 26 issues, if you will, says that we just take that issue -- the answer is no, they have not all been evaluated yet, some have and some haven't.

MR. FARBER: So --

MR. SCHRAUDER: If you take the issue as written, and accept for the time being for our assessment process that it's a fact, and then if you say that it's fact, then we went through the process of determining what is the generic issue and what is the potential safety significance and lump them together and come up with 26 potentially

safety-significant issues that need to be addressed if they, in fact, turn out to be true.

So that they are not all answered yet, they are not all evaluated yet. We are continuing in the process, but again if taken as true, they would boil down to 26 right now potentially safety-significant issues.

And then there is also the programmatic or topical issues that Jim talked about that are not included in the 26, the line break, seismic, Appendix R, flooding and equipment qualification.

MR. FARBER: So does that mean there exists a potential that further engineering evaluation of this additional population could reveal other potentially significant issues because it sounds like you have gotten to this point as a result of just your initial screenings subsequent to SRP and that the detailed technical evaluation --

MR. SCHRAUDER: No, out of that population you won't -- I don't believe you will find additional issues because again, like I said, the

issue is accepted as it's written. Now, as you do an extended condition, we are going to talk about that later. And as you look at other systems, you could have more issues that identify themselves, but I don't think we are going to find any additional potentially safety significant issues out of the 1,200 CRs that we are talking about here.

MR. FARBER: Okay.

MR. HOLMBERG: This topical ~~band~~ group we keep hearing about, and my understanding that is the flooding, EQ, do you have a number that you put on that in terms of CRs that are in the topical vein?

MR. SCHRAUDER: I don't have the number off the top of my head.

MR. HOLMBERG: Is it comparable with the other conditions or more or less?

MR. POWERS: Well --

MR. SCHRAUDER: Substantially less.

MR. HOLMBERG: In fact, let me ask -- I believe that the -- that group included all condition reports as great as 1,200 that were

generated, and in the system areas there was, I think, somewhat less than that in these topical areas. I think there is typically I want to say in the range of 30 or so.

MR. POWERS: That's right, so there was enough hits in those areas as far as CRs from a significance standpoint that we thought it merited further review.

MR. HOLMBERG: But -- okay. I understand if you have a population of -- we will take it as 30 or whatever, the real number is -- have these issues gone through some kind of thought process taken as they're fact, there was a significance to them, has that been done?

MR. SCHRAUDER: Not in exactly that same way. The safety significance evaluation that MPV was working on did not include those five topics. Those five topics are being evaluated now on the potential impact of those.

MR. HOLMBERG: The reason I bring it up is that another plant that I was involved with was in an extended shutdown, they had some ~~health~~ HELB issues

that turned out to be some more risk-significant issues, and that's why we list those. I want to make sure I understand. If we haven't done that, do you intend to do that process?

MR. SCHRAUDER: We intend to do this, all of those issues will be addressed prior to restart and their extent of condition

MR. HOLMBERG: Thank you.

MR. GROBE: Bill and John, in that course do you have any questions?

MR. DEAN: I don't have any questions, nothing at this time.

MR. GROBE: Okay. Jim, let me just ask a couple of questions. You have given a historical description of design reviews over the years, and I'm having a little bit of difficulty putting all of this in context, and I have a couple of questions just to make sure I understand.

It sounds like you have done a number of vertical slice reviews, it looks like six of them over the late '80s and early '90s, and then did a rather comprehensive design basis validation

program in the '97 and '99 time frame. Several of the systems that you have reviewed in your latent issues review in 2002 you had prior vertical slice reviews which were fairly comprehensive design reviews and were also covered under the design basis validation program. The findings that you have had from these latent issues review, why are you finding these today and not identified during one of these prior either vertical slice reviews, for example, service water was one of your latent issues you did in 1993, a vertical slice on service water, and then you reviewed all the systems again in the '97 and '99 time frame. Why do you have those, the 26 potential safety significant design concerns today, and were these issues previously identified and not resolved?

MR. POWERS: I think there is two reasons for the first part. Any time you bring a different individual into play in terms of coming in and asking questions, that individual, engineer, technician will bring his or her own unique experiences and background to the job to ask