PUBLIC MEETING
BETWEEN U.S. NUCLEAR REGULATORY COMMISSION O350 PANEL
AND FIRST ENERGY NUCLEAR OPERATING COMPANY
OAK HARBOR, OHIO

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Meeting held on Tuesday, February 11, 2003, at 2:00 p.m. at the Camp Perry Clubhouse, Oak Harbor, Ohio, taken by me, Marie B. Fresch, Registered Merit Reporter, and Notary Public in and for the State of Ohio.

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PANEL MEMBERS PRESENT:

U. S. NUCLEAR REGULATORY COMMISSION

John "Jack" Grobe, Chairman, ~~MC 0350~~ Oversight Panel
Christine Lipa, Projects Branch Chief
Douglas Simpkins, NRC Resident Inspector
Jon Hopkins, Project Manager Davis-Besse
Anthony Mendiola,
Section Chief PDIII-2, NRR
Dave Passehl, Project Engineer Davis-Besse

FIRST ENERGY NUCLEAR OPERATING COMPANY

Lew Myers, FENOC Chief Operating Officer
Robert W. Schrauder,
Director - Support Services
J. Randel Fast, Plant Manager
James J. Powers, III
Director - Nuclear Engineering
Michael J. Stevens,
Director - Work Management
Steve Loehlein,
Manager - Quality Assurance

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MS. LIPA: Okay. Good afternoon. Can you hear me in the back? Good.

Okay. Well, welcome to FirstEnergy and to members of the public. I'm Christine Lipa and I'm in Region III of the NRC's Region III Office, and I have responsibility for the NRC's inspection program at Davis-Besse.

And, we'll go through introductions in a moment here, but let me just go to the next slide.

This is one of -- we've been having monthly public 0350 Meetings with FirstEnergy since last May. And, the purpose of this meeting is to inform the public of the NRC's Oversight Panel activities; and that's what we are up here, the NRC's Oversight Panel; and, then also allow the Licensee to present their status on their progress in implementing their Return to Service Plan. And then, we'll be discussing various parts of that plan.

We'll go through the rest of the -- you can go to the next slide, which has the agenda. We'll go through the rest of the introductions in a minute here.

Jon Hopkins is on my far left. He is the Project Manager in Headquarters for the Davis-Besse facility.

Next to Jon is Tony Mendiola, and he is the Section Chief at NRR.

Next to Tony is Jack Grobe. Jack is the Senior Manager in the Region III Office in Lisle, Illinois; and he's the Chairman of the Oversight Panel.

Next to me is Dave Passehl, and he's the Project Engineer for the Davis-Besse Project in Region III.

And, next to Dave is Doug Simpkins, and Doug is the Resident Inspector at the Davis-Besse facility.

Also, in the audience today from NRC we have Ivy Netsell. She's is Resident Inspector at Cook, and she can also get you a handout if you didn't get one when you came in. Raise your hand, and Ivy will hand you one.

Also, we have Viktoria Mitlyng. She's our Public Affairs Officer in Region III.

Nancy Keller is the Office Assistant for the Resident Inspector Office at Davis-Besse, and she was in foyer with the handouts.

We have Jay Collins, who is a General Engineer on rotation from Headquarters.

I also saw Rolland Lickus. He's our State Liaison Representative. There he is.

And then our transcriber today is Marie Fresch.

And I'll turn it over to you, Lew, if you want to introduce your panel, then I have more to say.

MR. MYERS: Fine. At the end of table, Steve Loehlein. Steve is our Manager of Quality Assurance. And last time we discussed that we would like to have him here at the next public meeting, so he's prepared to speak today on what quality assurance is seeing at our plant.

Bob Schrauder is our Director of Support Services. As you know, he's working in the Systems Area Building Block now.

To my right, is Randy Fast. Randy Fast is our Plant Manager.

Jim Powers next to him is the Director of Engineering.

And then Mike Stevens at the end is the Director of Maintenance; and as you know, he's also the Outage Director at the present time.

MS. LIPA: Okay, thank you Lew.

Also, before we get started, are there any public officials or representatives of public officials in the room?

MR. ARNDT: Steve Arndt, Ottawa County Commissioner.

MS. LIPA: Hi, Steve.

MR. PAPCIN: John Papcin, Ottawa County Commissioner.

MS. LIPA: Hello.

MR. WITT: Jere Witt, County Administrator.

MS. LIPA: Okay. Anybody else?

Okay, good, thank you.

Okay, next on the agenda is a summary of the last monthly public meeting we had here on January 14th. I'll turn it over to Tony Mendiola for that.

MR. MENDIOLA: Can you all see that slide back there?

Basically, to summarize the meeting on January 14th, that we had here, the discussion centered on two main areas; basically, the restart preparations on both the Licensee's part and actions that we have as a panel have performed to date; and, then basically, we broke further down to the bottom of that topics discussed area, Safety Conscious Work Environment.

Let me recap for a moment the discussion. The NRC Restart Checklist, which is basically the action matrix that we're working from, we provided the update on that, and then discussed the status of various inspections, most of which are ongoing or will be ongoing soon; and, various meetings that we were going to have in the month of January and early part of February associated with the Safety Culture, and other meetings that we had or supported, commission meetings, and congressional briefings and things like that.

The FirstEnergy presentation focused primarily on restart. They discussed the status of the physical plant; basically, the construction work and modification work that was ongoing on the site. And the, their working off of their condition reports and corrective actions. Basically, they use very similar to the charts you see there on the, I guess on your righthand side of the room there, discussing the various aspects of, of their programs to complete these corrective actions.

There is a discussion of the, the Reactor Coolant System Integrity Management Program, which you can see about halfway down from the top was discussed there; and, basically, a continued discussion on their readiness to reload the fuel and other issues associated with the fuel and fuel reliability.

In the interest of time, we did speed up the agenda and moved right into the topic of the day, which was the Safety Culture, Safety Conscious Work Environment topic. At this meeting, the Licensee introduced Doctor Haber, who is their consultant to help them implement the new safety methodology at FirstEnergy -- at Davis-Besse, excuse me.

There was a discussion, detailed discussion of the FirstEnergy model for Safety Culture. And, I don't see a version of it here, but the Licensee provided a four-pillared graphic, which discussed basic principles of

Safety Conscious Work Environment, and four pillars that they are focusing on to improve the Safety Conscious Work Environment at the site.

Upon completion of that conversation, which lasted I would say about half the meeting, we then moved on to closure.

For everybody's interest, the transcripts from that meeting are available on the website. And, if there is any other topic areas you would like to, need more information on, you can see me during one of the breaks or at the conclusion of this meeting. That's all I have.

MS. LIPA: Okay, thanks Tony.

Then, the next slide was the next meeting we had, which was on January 30th. And we had a pretty lengthy public meeting in the Region III Office, where we discussed with FirstEnergy their plans for assessing the status of Safety Culture and Safety Conscious Work Environment at the facility; and the various methods of surveys, interviews, and attributes that will be evaluated. This included activities that have already taken place at the facility; those that are continuing, and those that are planned over the coming weeks.

And the slides for that January 30th meeting are available on our website and the transcript will come out after we finish processing it.

I did want to mention, I skipped over a few of my introduction remarks at the beginning, that this meeting is open to the public, and the public will have an opportunity before the end of the meeting to ask questions of the NRC. And this is what we consider to be a Category One Meeting in accordance with the NRC policy in conducting public meetings.

We're also having this meeting transcribed today to maintain a record of the meeting. And the transcription will be available on our web page. We usually have it available in about 3 to 4 weeks.

The agenda and the handouts are available in the foyer and on the NRC's Web site. We also have the February edition of the NRC monthly newsletter. This is a summary we put together that has background information as well as current activities.

We also have a public meeting feedback form. And, this is a really good tool for us to get feedback from people that are here, to let us know aspects of the meeting that we can improve on. And we've been doing that since these started back in May. And we have actually changed a few things, and I think we've made it a better meeting.

And then, also our handouts for today and the Licensee's handouts.

So, let me go on with the next slide then, which is the Restart Checklist. What I want to do here was give you an update on where we stand on the parts of the Restart Checklist.

The first items are the technical and nontechnical aspects of the Root Cause, and those are still under review by the inspectors and technical review of NRR.

The next area is the Adequacy of Safety Significant Structures, Systems and Components. And what we've done here is, we had several inspections that have been out, so let me go through a couple of highlights with you.

For Item 2A, the main item that is still outstanding for that is the Normal Operating Pressure Test that's scheduled after the first Mode 4. So, we'll be covering that with a special inspection.

For Item 2B, which is Containment Vessel Restoration, the remaining activity there is the ILRT, Integrated Leak Rate Test of containment.

For Item 2C, we have several unresolved items that came out of the inspection that was done, and exited in November.

For Item 2C-1, which is on the emergency sump, that inspection will be performed once the utility has completed their mod package, and we'll also be inspecting the actual sump that has been modified.

For Item 2D, the item that's remaining here is inspectors to follow the Licensee's resolution of problems that they've identified on boric acid containing systems that are on-site containment.

The next area that we have is the Programs area. And these are all programs that the Licensee is reviewing in detail, and coming up with plans to address deficiencies that they discovered. So, right now the inspectors are planning to come out when the Licensee's reviews have progressed sufficiently that there is something, a completed product that we can inspect.

The next area is Section 4, which is the Adequacy Organizational Effectiveness and Human Performance. And we actually have three phases to this inspection. Phase one has already been completed, and Jack will go through that in a few minutes and then we'll be continuing inspections to address those checklist items.

Section 5, which is Readiness for Restart, these areas are not really ready for inspection yet.

And then Section 6, which are several licensing actions. And for all of you, licensing actions, which is the first bullet there, the NRC has received the information that they were waiting for from the Licensee, and it's under NRC review, but there is no outstanding questions. We do plan to document closure of these many systems in Inspection Report 0302.

And then the final item on the Restart Checklist is a meeting at the end of Confirmatory Action Letter Items Resolution to discuss restart when the utility is ready for that part of the process.

Okay. The next slide is, I'll turn it over to Jack, and he'll discuss some recent inspection activity and some upcoming inspection activity.

MR. GROBE: Thank you Christine.

Can you hear me okay? Excellent.

We've issued one Routine Resident Report and one Special Inspection Report since the last time we met. The Routine Resident Report covered a broad spectrum of areas as is characteristic of all of our Resident Reports. The Residents are on site every day and they inspect ongoing activities at the plant in the areas of maintenance and operations and testing.

The Special Report that was issued concerned the checklist items dealing with the adequacy of the Root Causes in the Human Performance area, as well as the adequacy of the Licensee's Improvement Initiatives. That's Checklist Item 1 and Checklist Item 4.

The report documented the results of inspections that covered the first two Root Causes. The very substantive Root Cause that the Licensee submitted last August, that addressed what is commonly referred to as a barrier analysis. It was looking at barriers to failure in all aspects of operation of the plant.

And in addition to that, there was an additional analysis that was performed of the Quality Assurance aspects of the plant operations. It was specifically targeted in the QA Program and the implementation of that program.

The inspection team found that both those analysis-- analyses were comprehensive and the identified corrective actions to address the issues identified in the analysis appeared to be adequate, if they're properly implemented.

In addition, the inspectors identified a number of questions regarding the scope of the two remaining analyses that the company was planning, particularly questions regarding the impact of engineering on the problems that were discovered last February, and the impact of corporate support.

So, the Licensee has since that inspection completed its analyses in the area of Plant Operations, as well as the Safety Committee's function, and added to that analyses in the area of engineering and corporate support. Those four remaining analyses are now complete and we'll have inspectors that will be coming back to the facility this month to continue that inspection.

As Christine mentioned, this inspection is being done in three phases. The first is ensuring that the root causes are sufficient. The second is to make sure that the corrective actions that the company has identified appear appropriate to address those problems that FirstEnergy identified. And third, looking at the implementation of those corrective actions and their effectiveness prior to restart.

So the, a portion of the first phase has been completed, and we'll be continuing with the rest of phase one of that inspection and moving into the second phase.

In addition on this slide, you'll see the second bullet concerns the System Health Reviews. I believe, I looked ahead in FirstEnergy's presentation and they're planning on having Bob Schrauder address some of those engineering areas in the System Health Reviews.

We have ongoing inspections, particularly focusing in the engineering areas, and the company has worked continuously in that area, so our inspections are tracking as they complete work activities, we send folks out to inspect those activities.

In the Program Effectiveness area, we had two programs that we need to complete our review of on the short run, and those are the Boric Acid Corrosion

Management Program, and the Reactor Coolant System Leakage Program. Then there is a number of other programs that our inspectors are tracking Licensee progress, and we'll be out to inspect when they're ready for inspection.

There are, as Christine mentioned, a couple of other inspections that are scheduled in the near term. Those include the Integrated Leak Rate Test and the Pressure Test of the Reactor Coolant System.

We expect to see those occurring in the next several weeks, as well as, hopefully, a specific targeted inspection in the radiation protection area. As you may recall at the last monthly meeting, we publicly discussed the results of resent inspections in the area with protection of workers on site as well as controlled materials that, radioactive materials that could potentially get off site. Identified a number of findings in those areas. And shortly our inspectors, our radiation safety inspectors will be back out to look at the corrective actions the company has implemented in the Radiation Protection Program.

I think that summarizes continuing inspections, Christine.

MS. LIPA: Okay. Thank you.

Then, if you could go back to slide 3.

This is just the agenda. And next on the item is the fourth bullet, which is the Licensee's presentation, and then following that, we'll take a break, and then we'll have the public comments and questions period.

So, I'll turn it over to you, Lew.

MR. MYERS: Thank you.

We have four Desired Outcomes today. First, we thought we would take some time and update the NRC and the public on our efforts that we made toward restart in the past month. Specifically, Randy Fast will provide you some, a review of where we're at from a fuel load standpoint right now.

And then, Jim Powers is going to talk to you about the Integrated Containment Leak Test that's coming up, probably before our next meeting. And that test was designed, since we installed the reactor vessel head, we're going to go back and pressurize the containment and prove it's leak tight, designed pressure. So, Jim will talk to you about that.

From a System Health standpoint, Safety Function Validation Project is a project we took on after we did the initial reviews of our systems. We always said, after we did those, that we would increase our scope based on what we found. So, we took on another set of systems that we wanted to go look at. We call that program the Safety Functional Validation Project. Bob Schrauder will talk about that.

Then from a Restart Readiness standpoint and Safety Culture, we had a meeting January the 30th, and spent six hours there. I'm going to try to recap that meeting in about six minutes. And then provide a review of what we've done as a Restart Readiness Review at the plant for fuel load.

So, we had Restart Readiness Review meetings, and finally at the end of those meetings graded our own Safety Culture, where we think we're at using our model. So, I thought I would spend some time on that today.

Then, Quality Assurance, Steve Loehlein, we talked about having him here the next time, this time, to discuss what the Quality Assurance Oversight Group is seeing at our station. They were brought up through Bill Pearce, our VP of Quality Oversight, and provide us an independent assessment.

Then, finally, Mike Stevens will spend some time to talk to you about our schedule, where we're at. We thought right now that we'd have fuel load, at the last meeting at this time. We haven't got there yet. Just spend some time on that, where we're going in the next few months, and few weeks, okay.

That's it.

With that, I'll turn it over to Randy.

Next slide.

MR. FAST: Thank you, Lew.

Good afternoon. Today, I would like to update us on our Restart Readiness. I'll provide discussion and focus in four key areas; those are fuel readiness, our plant status, our processes and finally an update on observations and the observation program.

Next slide.

First on the fuel. We worked with our fuel supplier in identifying why we had indications on fuel assemblies, damage on grid straps. I'll kind of show you right here is what we call a grid strap.

That area provides support for the fuel rods themselves. The fuel rods are the array that you see here, the vertical rods. What we found in the movement of fuel on some new assemblies in the spent fuel pool, we had damage on, specifically on the corners of those grid straps.

What we identified were three key areas; one of which was the design and material selection. These are a fairly soft metal, and prior to being irradiated, are actually fairly malleable. And that design is one that the industry is well aware of and there are actions being taken by Framatone to improve that grid strap design.

Secondly, we looked at our equipment to see, was it operating the way we would expect it to. And we did find in the spent fuel pool the equipment had some alignment. We require vertical indexing over each assembly; and as well the indexing, that's the grid location were off a little bit. So, we did take the action to go back and reindex the spent fuel pool.

Lastly, we identified some of our handling techniques. We weren't using industry experience as well as we could, and we went back and evaluated that; got some help from the industry, and best practices for moving fuel. We believe that those corrective actions are effective and they will ensure that we can reliably move the fuel.

One of the things I want to point out is, these grid straps are really a structural mechanism and it's not a contributor to fuel failure. Although, we were concerned, and we want to make certain that we're handling the fuel properly, it did not result in the root cause analysis in actual fuel failure.

This assembly right here is actually an assembly that had grid strap damage and was sent back to the fuel supplier and remanufactured. This is one of our reactor engineers here performing an inspection of that assembly as it was returned to the site.

Additionally, as part of this outage, we've taken on an opportunity to improve our main fuel handling equipment. And we have put in a state of the art fuel bridge modification, which includes improved controls and it will improve our reliability.

Now, part of this whole process of moving fuel takes a dedicated team of individuals. And we've partnered with our fuel supplier, Framatone, to move the fuel. And we actually have four senior advisors that are working with our Operations staff as part of that fuel movement. That compares with normally you will have one at a station in that senior advisory capacity. We have four. So, we can ensure that we have round-the-clock coverage and we have the best industry experience to help us in moving that fuel.

Lastly, we have completed all the training. So, each position associated with the movement of fuel have gone through an exhaustive training program and we've recertified all of our folks to ensure we can have safe and reliable transfer of fuel.

MS. LIPA: Randy, I have a couple of questions for you about the fuel. First of all, did you assess the design issue with the grid straps under part 21; and then second, what was the root cause of the fuel failures?

MR. FAST: Okay. Christine,

the first question on the part 21, we have not submitted that as a part 21. And, again, what I'll do is take an action to assess that, and see whether or not -- I believe from a reportability standpoint it wouldn't be, but it might be advisable to provide some, a report just to make sure you're on board with what we found.

This particular root cause was not in the fuel failures themselves. This was in the grid strap. So, we have another root cause. And I would have to think back, because that's really quite a few months ago that we had completed that review, and actually had a space there -- excuse me, grid rod threading, which is high frequency vibration of the fuel rod. And the threading is the actual rubbing of the spacer grid components against the fuel rod and actually wears a hole in the fuel rod.

And that's where the root cause was completed earlier. It was not part of this root cause and preparation. And all the corrective actions from that had been completed as well. Some of those are corrective actions where we provided some solid stainless steel rods in place of the actual fuel pelleted rods in locations where we saw that the grid-to-rod threading was more pronounced and that is actually adjacent to LOCA holes inside the core.

Those are areas where you have increased flow comes in contact with the fuel rod, sets up a high frequency vibration, allows the fretting to occur. So, we stabilize that by providing some stainless steel rods in those locations.

MS. LIPA: Okay. Thank you.

MR. GROBE: Randy, before you go on, I understand one of the activities you need to complete prior to commencing fuel reload has to do with reactor vessel cleanliness, and I heard that some of the materials that were identified in the vessel were grid strap materials. Could you go into a little bit on the issue of reactor cleanliness and what you're doing about that?

MR. FAST: Certainly. As part of fuel load preparations, we do a thorough inspection of the reactor vessel and the area underneath the vessel. The fuel sits on a, what's called a core barrel. It's really an assembly in the bottom of the core that provides support for the 177 fuel assemblies.

During this period of time where the fuel has been offloaded in the spent fuel pool, we want to do a complete and thorough inspection of the reactor internals and of the core barrel and the lower portion of the vessel to ensure there was no foreign material or any debris.

What we found through that was a number of indistinguishable piece parts, I'll call it; some of which are most probably pieces of grid strap. We did, I think today, identified a ball bearing. Don't know exactly, it may have come from one of the tools that is used for fuel, but that's something we're going to have to evaluate.

As well, saw some foreign material, light debris, some of which was probably some paint, paint chips and the like. And we've gone through and vacuumed that. We redistributed it. We do a video. That's kind of, I'll use the word, Lew likes this, a cursive process. We actually go in, we clean, we go back inspect. We have to meet Class B Cleanliness Requirements for the Reactor Coolant System for stainless steel systems.

So, we'll continue to clean the vessel until we meet the Class B Requirements.

MR. GROBE: Okay, thank you.

MR. MENDIOLA: Randy, if I could ask a question. You mentioned there was an alignment problem in your spent fuel pool. Could you tell us a little more about that?

MR. FAST: Tony, what you have is a series of what I'll call X Y axes for each fuel location. And we had gone through in 2001, and then into 2002, a rerack project. What that is effectively, is we needed to provide more storage location in our spent fuel pool for expended fuel.

As part of that rerack project, we had some of the locations off by as much as about a half an inch. When you look at the very close tolerances of the storage locations and the fuel and the mast, we found that we had an opportunity to set up, an opportunity to have grid strap the corners that come in contact with those storage locations.

So, we went through and reindexed the pool. And I know now we're within about an eighth of an inch, .125 inches, that's well within the design requirements for fuel identification.

Additionally, we had some compensatory measures where we used a camera to verify that we're on index. There was one other issue that is called out in the report, and that was the potential that the fuel mast itself was out of vertical. What we found is that it was in vertical; however, there are some spacer, spacer plates in there that provide very, very close tolerances. What we've asked Framatone to do is review that design and see whether we can open some of those tolerances that will provide a little more flexibility in handling fuel in the spent fuel pool.

MR. MENDIOLA: Okay. Basically,

it had to do with the position of the rack within the pool; meaning, if you will, in an appropriately indexed position.

MR. FAST: Yes, sir.

MR. MENDIOLA: Not the fuel in each of the locations, but the rack itself.

MR. FAST: Yes, and actually I asked that question. The fuel in the assembly could be at any one of the, it may be pushed over to any one of the north, south, east, west walls, and you should still be on index it at that point. That's where some of those tolerances, those stackup tolerances come from. That's well within the design, but the index in itself was off by as much as a half an inch.

MR. MENDIOLA: Thank you.

MR. FAST: Next slide, please.

We talked last time about reactor coolant pumps. Just to refresh, we did complete refurbishment on the 1-1 and 1-2 reactor coolant pump and reactor coolant pump motor. This is one of the reactor coolant pump motors that's being lowered down into the D ring inside of containment.

A question came up about, we did two out of the four reactor coolant pumps. You would say, why did you do two and not do the other two. This was what I'll call elective maintenance. We were well within the normal preventative maintenance periodicity. However, we took this as an opportunity to open up and do inspections on the pump and motor.

And part of the issue here was, as well, going back to the extended condition, boric acid. We had some legacy issues in boric acid leaking from the flanges for the reactor coolant pumps themselves. That was an industry understood situation.

Framatone had come up or Byron Jackson, the supplier of the pump, has a new generation seal that provides better sealing and leak prevention; and it's much like a reactor vessel, it's a dual O-ring seal design. We went with new generation on these two.

The other two are well within their periodicity. The other two pumps that we did not go after, and motors, are well within their design for preventative maintenance. We didn't see any extended condition items from the analyses of these two pumps and motors that would drive us to go after the other two.

We will continue to monitor those and we'll implement corrective actions in accordance with our Preventative Maintenance Program.

Next slide, please.

This is about the best picture I can provide to-date on the upper portion of the containment emergency sump. And as we talked last meeting, I had one of the top hats here, which is the cylindrical filter assemblage that allows the 3/16 inch holes that are drilled, water during a design basis accident floods the containment and comes up.

And these, I'm going to use a term here that we kind of affectionately call, trash racks. This is a large filter on the outside. You'll see some of the top portions of those racks, which fit around the top of this. That provides a first barrier for the straining of any foreign material.

And then, inside this upper portion, about 400 square feet, about 15 square feet each of 27 top hats, provide that top level of the strainer.

This is now functional, the upper section. And we, after fuel load and recovery of the reactor coolant system fuel and vent we'll complete the lower portion of the containment emergency sump.

It's a pretty good picture of the area. It's at the 565 elevation of containment against the south wall.

MR. HOPKINS: I have a couple questions on that. In the Licensee event report that you submitted to us, especially Revision One dealing with the sump, you talked about part of the reason for the new sump is the old sump had a gap that was too large, and that could potentially affect containment spray systems.

You also stated that besides that potential affect on containment spray systems from the too large gap which you had to fix one way or another, and your fix is with the new sump; that the new sump would also provide you extra margin with regards to amount of debris that might get on the screens.

Have you made any finding with regard to the amount of debris on the old screens, would have been too much?

MR. POWERS: Let me answer that one, Jon. On the old screens, they're about 50 square feet of screen material on the old sump. And, we have been preparing what we call a transport analysis that takes an assessment of the debris that can be generated during an accident in containment.

(Microphone problem)

Thank you, Mike. Let me start again.

The old sump had about 50 square feet of screen, screenage on it to allow water flow-through, and the new sump has about 12, 13 hundred square feet. So, we've improved that substantially.

Now, what we have done since we've been comparing this new design is doing a transport analysis, looking at debris sources within containment, and we're following some of the latest industry guidance on that. The industry has learned quite a bit over the years from the original licensing and design basis of the containment emergency sumps up until today.

Originally, the sumps were designed back in the late 60's and through the mid 70's, to consider a 50 percent blockage. And that was relatively nonmechanistic, if you will. Assume it's 50 percent plugged and determine there's adequate MPSH to the pumps with that blockage.

As we gone on with time and incidents have occurred relative to sumps, we've assessed more accurately what kinds of debris can cause problems with the sump, how would debris get down to the sump. And the industry, as well as your organization, has done studies on that, modeling what we call transport debris generation and transport down to the sumps.

And we completed that ourselves. We determined that given what we refer to as a design basis condition, we get a large break of a reactor coolant pipe, a lot of steam, and pressure released; there can be, there can be a substantial amount of debris that is transported down to the sump area.

Of course, there is smaller type breaks, you would have a condition where not as much debris would get down there, and the sump generally is, is more functional when you have smaller types of breaks.

So, what we said in our Licensee Event Report that you were referencing is related to design basis accidents, how much debris can get down there. What we determined is with our new sump, and new screenage, that we would have margin available, even under that condition, extreme conditions to our pumps.

MR. HOPKINS: All right. I'll just mention that the NRC is going to issue a draft generic letter on this issue, I think within the month. So, you want to read that, see what it says.

MR. POWERS: Okay, thanks. We'll be watching for that.

MR. GROBE: Jim, could you go into a little more detail on the transport analysis? Are you analyzing the as-found conditions in February of 2002?

MR. POWERS: No, what we really looked at, Jack, was design basis conditions; worst case, large break, LOCA accident conditions. And we're looking at it from the perspective of what was found to give a safety significant assessment. And, we've begun preparing that now.

Because, what was found in February with the degradation on the head would constitute a relatively smaller type of break in the reactor coolant pressure boundary, and relatively contained within the service structure on top of the head. So, we wouldn't expect from that type of as-found condition to have a lot of debris generated that would transport down to the sump. It's a very tortuous path to get down to the sump from that location.

So, what we've been analyzing for a design basis and reporting in our LER, is large break design basis. We will provide however a safety significant assessment on what was found in February.

MR. GROBE: What are the major contributors to the debris that you're talking about?

MR. POWERS: Major contributors are insulation, and it can be either metallic, reflective metallic insulation or fibrous insulation that's wrapped around pipes and components; coatings, if they're not fully qualified, the temperature, pressure and radiation within containment that can exist after an accident.

Also, when you consider a large break, design basis break, we're talking about very violent discharge of jet, of reactor coolant, that can strip concrete and paint and insulation off adjacent structures; and that's what constitutes the debris. That's what the industry guidance in recent years has defined what the, what's the constituents of the debris. So, that's the type of thing that we look for.

MR. GROBE: So, the design basis worse case design break is what you're analyzing. Are you looking at the as-found coatings with that analysis?

MR. POWERS: We, yes. And, as we've described over the, some of the last meetings, we've been looking very carefully at our coatings within containment; and as we go through some of the progressive slides here in Randy's presentation, you'll see the recoating project we're doing on the top of the containment dome. Where you can stand up on the refueling floor and look upwards. It's quite a height up there that we're up working with painters, stripping and recoating to assure we maintain a qualified coating system up there.

We've also recoated our core flood tanks. We're working on recoating service water piping. We found on a very thorough containment walkdown and assessment of coatings, that our conduit that some of our cable and wiring runs through has a coating system on it that's not fully qualified for the post-accident conditions.

So, we're very carefully looking at that to see to what extent that coating needs to be removed and replaced. And we're using our transport analysis to make a determination to what extent that needs to be removed and what extent it can be allowed to stay, and very clearly defining in our inventory of unqualified coatings in containment, you know, what the as-left condition will be.

MR. GROBE: In the analysis that you performed, how significant a role did the unqualified coatings play?

MR. POWERS: The unqualified coatings is pretty significant overall. If you look at the square feet of coating within the large containment structure, there is quite a bit of coatings. So, to us, that was a significant part of the, the walkdown of containment under Containment Health, looking for coating qualification information, inspecting the condition of the coatings, and looking for repairs on the coatings, because there is a large amount of coatings; a significant contributor to potential debris for the sump.

MR. GROBE: Okay. If you could just summarize for me in a few words the conclusions of your analyses to-date with respect to whether or not the sump would have functioned given a design basis accident?

MR. POWERS: Given a design basis accident, there is a, there is a concern with the amount of debris that can be generated under design basis conditions, because of what I described as a very large break, a large amount of debris being transported. And, we think the original sump, which was designed in accordance with the design regulation and criteria at that time, could have been blocked to a large extent by debris.

When I look though at the conditions that were found in February, with the head degradation, it's really, it's not in the same regime, I guess you would say, as a design basis large break. It's a smaller potential, potential for a smaller break there. So, we think under that case, the sump likely would remain functional.

But, the reason we reported our conditions under the LER, was for design basis condition, we did not feel that, that the original sump would have been satisfactory.

MR. GROBE: Thank you.

MR. FAST: Next slide, please.

I wanted to point out, what we have here, what we call the decay heat pit. We've actually renamed this. This is a decay heat tank. This is legacy issue that two decay heat valves that are in a vault in containment which are required to operate post accident any time from immediately following the accident up to about a week after the accident. And, those valves have been sealed traditionally with sealing RTV material.

We wanted to take a proactive approach at resolving that legacy issue by providing in this case the stainless steel vault or tank. And this photograph is probably difficult for you to see, but what you see is a curved section right here, which actually is installed to allow for thermal expansion of that tank.

So, this design will ensure that integrity is maintained for these two important valves in containment. It will be completely sealed prior to our going to Mode 4, and that work is proceeding well, but I thought of interest would be this design feature that includes for thermal expansion within that tank.

Next, please.

Here we have the containment air coolers. We've talked about that quite a bit. There are three in a row. Again, it may be difficult for you to see, but there is the third one back here; the one most pronounced in the middle here; and then there is one in the foreground.

What I wanted to be able to point out is we're making excellent progress in returning these. These are completely refurbished. New cooling coils; as well, all the structural steel has been blasted and recoated. What you see right here is a foreign material exclusion cover on a service waterline. This is the line, the blue line that's coming in. You have an inlet pipe and an outlet pipe. Those distribute water into and then out of these heat exchangers.

What we have is a brand new design that again allows for thermal expansion under design basis accident conditions. It's actually conduit and stainless steel bellows assembly, and that will allow for some thermal growth. So, these are not installed yet. That's one of the last things that we have yet to do. And those are in fabrication.

So, that supply and return header will be attached to, in this case, the, there are three heat exchangers here, and three heat exchangers here. On the opposite corner you have as well the other, so there is a total of twelve heat exchangers, you have the other inlets and outlets. So, you can see that these have been completely refurbished.

The fan motors inside are all new and completely refurbished. We have brand new what's called dropdown dampers. The air flow comes from the area here in the general vicinity is pulled through the heat exchanger, comes down through a fan, and is exhausted through a plenum, which is our next picture. But under design basis accident, there is a drop down register. I'll point it out in the next photograph, but those actually open up to short cycle the redistribution of air within containment.

Here is, what's really like a boxcar or tractor/trailer. It's about 40 feet wide, and this is just about completed. The drop down damper, difficult to see, but it's a damper that's right in this area here. And that damper would close, and there is an upper portion that opens. It's got fusible lengths that under heated conditions allows the damper to open and short cycle the air under design basis accident.

On the far side, on either end of this plenum, this is a common plenum for all three containment air coolers, you have some turning veins. It's a 90 degree turning vein comes exhausted out, has two separate sections of 90 degree turning vein; and then brings the air under normal recirculation back into the D ring.

So, that's a stainless steel, half inch stainless steel plate floor; stainless steel walls that have been bolted together; and we're working on the overhead in connecting everything together. So, making very good progress on our containment air coolers that will greatly improve environmental conditions and ensure reliability for basis design accident.

Next slide.

MR. GROBE: Randy, before you go on, could you or Jim or Bob, discuss a little bit of your analysis of the as-found condition of the containment air coolers and the, as far as whether or not they would have functioned as designed?

MR. POWERS: Yeah, we've been analyzing the containment air coolers. And, for those of you who haven't attended previous meetings, a description of those air coolers Randy described the air being drawn through them. Well, the air in the containment had boron mist in it, and those cooling coils were fouled somewhat with that boron precipitating out.

So, we needed to do an assessment on how that would affect our heat transfer capability. And we've also disassembled the cooling coils as we completely rebuilt them, and inspected them as part of that process; and found when we opened them up, there was some, inside some deposits from the water system that had built up over time. So, we took into consideration all of those factors in the performance of the containment air coolers.

Now, we did a thermal performance calculation, and from the design basis, licensing basis conditions of the plant, the containment air coolers work in conjunction with containment spray system to control the containment pressure and temperature conditions in a post accident environment. And, what we found is that working in conjunction with containment spray, the containment air coolers would be operable and perform their function to control containment conditions.

What we're going through now in the details is assessing the functionality of the sump, which I just described; and on an integrated basis, if we had a, an accident in the containment, the function of containment spray, which takes suction on the sump, and the containment air coolers; and what the likelihood is, that the, you know, the performance and functionality of the sump would be affected.

And so what we're doing, what I refer to safety significance assessment, that's taking into consideration the total picture. Debris being generated during an accident. What's the likelihood that it would get down to the sump and block it, you know, from a design basis perspective. We consider by design rules that it might, practicality of it getting down there; functionality is probable.

And so, looking at containment spray, and the performance of the containment air coolers on an integrated basis is what we're working through now, Jack. I know there is still work to be done to answer your question completely, but our intention is to provide a report of that assessment to you for review.

MR. GROBE: Do you have an idea what the schedule will be for completing that?

MR. POWERS: We've just completed the assessment of the containment air coolers, so now we're beginning the process of doing an integrated look at the plant response. And I would expect it's going to be in the range of two to four weeks to put that together.

MR. GROBE: And again, each of these analysis is looking at -- analyses are looking at a design basis worst case accident; is that right?

MR. POWERS: Well, in the case of the -- that's right. Containment air coolers, the answer is yes. We're also looking at it from the perspective of what is the more likely condition, both from a design basis condition, and then from a safety significance perspective.

MR. MYERS: I think there is a couple of interesting points. You know, one of the things is we went back, if you look at this thing as a whole. We think we'll be able to demonstrate functionality. For the first 30 minutes or so of an event, you really don't need the containment sump, because we're ejecting water from the boric acid tank, you know.

And then, the other thing that I think you mentioned is important, the technology has changed over the years. And we've talked about that in here a lot, in the analysis, like transport analysis. When we originally designed the plant, the design basis of the plant that was approved by the NRC and us, you know, that we assumed, we just automatically assumed 50 percent of it got plugged up.

We met that design basis. We always have. Coming out where it is now, with some of the new models, we can theorize things that we haven't in the past, you know. We can keep theorizing, you know. But some of these theories, on the paint being blown off and things like that; we'll probably see something like that.

But we met the design basis of the plant initially. And functionality of the plant, we believe, right now we believe would still be intact based on that design basis. And, and then we're going back to this transport analysis, and looking at some other assumptions. Those assumptions weren't in the original design.

MR. GROBE: Okay, thanks Lew.

You brought a question up and I think you answered it already, Jim, but let me make sure I clearly understand. You're doing both a design basis analysis, but also probabilistic analysis; is that correct?

MR. POWERS: That's right, Jack. The design basis analysis would be reported in a Licensee event report related to the containment air cooler conditions, and capabilities. And then the safety significance assessment will be a separate assessment based on as-found conditions and significance.

MR. GROBE: Okay.
MR. FAST: Okay. Moving along. What we see here is the containment dome. Just to get a vantage point of where we are, we're at the 603 elevation looking straight up into the containment dome. And this is the polar crane, which has provided very good reliability after we have gone through our modification there. That rests on an outside ring, support ring here.
And I'll point out a couple of things. One is the spray headers. So, you see a circular header here. That's in the uppermost portion of the containment dome. And then a lower containment spray header, the circle that I'm identifying here.
What we've done, we've completed, as you can see, a significant amount of the containment dome in the refurbishment. You see the gray areas here where we actually removed the paint.
That's a pretty arduous process. Used what's called a rotopine; we also use needle guns. This is an air operated and vacuum drag the debris back into the containment system. And, that's where the paint's been removed. You can see then the line where the old paint -- here's the new paint, the white fresh paint. You can see the gray where the paint has been removed. And then on the outer ring, the paint that has yet to be removed here.

So, you can see the actual rigs, the spider rigs that the paint crews are working out of. You can see how they will actually rotate around to remove that paint, and then another crew will come back and reapply coatings to that surface area.

So, that's quite an effort, and continues to go pretty well. The surface area associated with that dome is about an acre, and all of that paint is hand removed. And so, you want to get an update of where we are, we're making good progress. We expect from a coating standpoint -- kind of back to this sump. This paint needs to be recovered in this area. Anyways, we do not have to remove the rest of the paint on the walls.

Now you see here below that support. That's a different style of paint. That's both a carboline, but a different type of paint and that paint is good. It meets design requirements.

MR. GROBE: Randy, there could be folks in the audience that, for those of us that stood there that actually makes sense; could you give dimensions?

MR. FAST: The building itself is about 2.8 million cubic feet and overall almost 300 feet tall. So, from the 603 elevation, which is the operating deck of containment, as we've talked about some of these other areas; the sump, the top portion of the sump is at 565 feet. That's also where the plenum is. I showed the pictures of the containment air coolers. So, that's the lowest elevation of containment, 565 foot elevation.

The next is 585 feet. That's where the containment air coolers with the actual heat exchangers are located. The operating deck is at 603. The top of the D rings is 653 feet. That's 50 feet above that. It's about another 30 or so feet until you get to the support ring for the polar crane. And then it's about another 50 or 60 feet to get to the crown of the dome. So, overall, 300 feet from top to bottom.

MR. GROBE: So, from where that photograph is taken to the top of the dome, it sounds like it's about 130 feet up?

MR. FAST: Yes, sir. That's approximate. I would have to figure out the math. Don't hold me to the 130. It's pretty close though.

MR. POWERS: It's pretty special people that go up there and do that painting, I can tell you that. Randy, did you go up and experience that?

MR. FAST: It's kind of an interesting story. I really wanted to understand what was going on in the containment dome. A lot of hype and I wanted to see it up close and personal. We have a qualification process that qualifies, just like a window washer on a building. These rigs have some specialized safety features for running the rigs up and down. I went through that training program; was qualified as a rig operator. Went up to the dome, and I actually removed paint for about an hour up in the top of the dome. It was quite exciting. I'll tell you.

MR. MYERS: Plus, it's an area we spend a lot of hours of inspection time, from that standpoint.

MR. FAST: So, really, my hat's off to the paint crew. It sounds kind of like, well, paint is not a big deal. I can tell you, these are engineered coatings. This is a very dedicated crew that are working this at heights.

And in fact, just an item, from an interest standpoint, you can say, well is that safe. Actually brought in a specialist in the industry, a Professional Registered Engineering to look at the design of these rigs and the application, and we got a good bill of health. And, we continue to work safely in this area.

MR. MYERS: But to go into the containment, to go up there; what's it take, like 30 minutes?

MR. FAST: It takes about 30

minutes, by the time you brief, you get in the basket. I went up with three other people. By the time you get up there, you have a series, actually had three tie-off lanyards to ensure that you're safe. You're tied off by double point at any one time. Then, you transition one lanyard to your next position, and go through a series to go from the basket to -- then we had, while we were doing that uppermost portion, we had two 35-foot sections that were in the very top and they were suspended by a central pivot point at the very top of the containment dome.

Interesting project and really quite a tribute to the folks that are doing this work.

MR. FAST: Next slide, please.

Next area I wanted to talk to you about is some of the processes we went through. Certainly, we looked at the plant and the plant's readiness to move fuel. But, one of the things that is very difficult to assess, but we actually use a business practice, this is much like a procedure, was developed at our other stations.

We went through and refined it specifically for our recovery here at Davis-Besse; and that involves a collegial review by about 40 key organizational folks, including supervisors, superintendents, managers, directors, and our more senior people. Lew was personally involved with this. We brought over our Vice President from the Beaver Valley Station, and as well our Executive Vice President of Engineering attended the majority of these discussions.

This went through a very detailed review of our readiness. And we got started probably a little early, but we invested between 50 and 60 hours of discussion in going through this very detailed review.

It included the seven Building Blocks, and then as well, we went through each organization and looked at things like, do we have the proper staffing; are our folks qualified; have we completed corrective actions associated with problems in their areas; do we understand what their back logs and procedures were.

So, that review was a very intrusive review. And it added a significant amount of value, I would say, in our ability to assess our readiness to move forward.

One of the specific actions that came from this were the Refuel Director roles and responsibility here. The Refuel Director is a Senior Reactor Operator licensed individual that is overseeing the actual movement of the fuel to ensure that it's reliable and done safely.

What we found out, as we queried. This is really a tribute to having some new folks, use to maybe doing things a little differently. Being intrusive, asking questions about how do we do that. What we found out is the Senior

Reactor Operator was a little bit different than what we would say the traditional role of the Refuel Director was.

We had what was called a tag board which keeps track of the fuel itself, involved with some of the administrative processes. They did not meet our expectations. We subsequently changed that role and responsibility to provide direct oversight, no administrative duties, to ensure that we can safely move fuel. That was a direct output from this Readiness Review.

Another one, we put in place the Management Oversight. When I talk about Management Oversight, certainly myself and other senior managers have been involved in looking at our readiness and the support. I've made tours. I know Lew and myself and others made tours of containment most recently within the last few days in seeing how ready we are.

But we did put in place, a seven-day-a-week, 24-hour-a-day Oversight Management Team, which includes folks that were previously licensed and have refueling experience. And, they're sitting there with the sole purpose of overseeing the process of moving fuel.

Lastly, I want to talk about and we've had a lot of discussions about our Observation Program. And we've already gotten some good feedback on the observations that have been conducted as part of our fuel readiness. One I would mention is foreign material exclusion. We put in place a housekeeping zone in the containment for the movement of fuel, and we have a single point of access to those areas to establish housekeeping boundaries.

We saw that we had some opportunities for improvement there. Those were documented on a Condition Report as well as an observation, so we have corrective actions to ensure that the role and responsibility of that foreign material exclusion monitor is, will meet our expectations.

Just a recap, and not to bore you with a lot of facts, but we did our totalization of management observation for the month of January. We did a total of 468; 364 included fuel observations, 46 a training. I think it's important, because training continues. We still have a lot of training that's going on, particularly in the operations area. And, then 58 that were specific to operations processes. 21 Condition Reports were generated based on those observations.

We had 90 percent schedule adherence, I'll call it. You know, Lew has talked to us about, it's not just a matter of just run out there when the time is right, we want to preschedule those important evolutions and make sure the people are scheduled to monitor it.

I was scheduled this last week to look at personal protective equipment. Part of the reason I was scheduled to do that is that was one of the shortfalls we saw as we pulled together the information from the January observations. We saw that there were opportunities in areas for room for improvement.

I made an observation. I actually took some specific action to get some additional safety equipment that was identified from my observation about personal protective equipment.

We feel like we've made some pretty good progress. We benchmarked and compared ourselves against our other FirstEnergy Nuclear Operating Company Stations and we are doing more observations. And, although, sometimes our staff say, we don't see our managers enough; we have assembled a pretty impressive amount of observations.

About 72 percent of the field observations focused on some element of safety, whether it be radiological, nuclear or industrial safety; and 28 percent of those field observations focused on improvements and standards and being able to coach our folks to new standards of excellence.

As part of the observation program, we have specific attributes that we look at. We had a total of 656 checks on procedures. That's verifications of procedures that are in use, that they're being followed, that they're being place marked; and so we have 650 total checks on procedures. No alarming or no trends that we saw that would require us to take any immediate action in that area.

I thought it was interesting, got a couple of facts here. The least observed focused area were observations, field observations of office safety. I think that's, that tells you that we're going where the action is. We're going out to the plant and seeing the activities that are actually ongoing. I think that's good, because sometimes in an observation program, we'll allow observations of something like office safety. While certainly that's important, it's not our focus area. And, when you do the rack up of information, it substantiated that.

So, that's really all I had to identify. Well, we did have some strengths, I just identified. We saw some good teamwork. That's good. As we're building this team, we want to be able to look at teamwork; we want to look at communications, some of our human performance tools, like a questioning attitude and peer checks were identified as commonly seen strengths as part of observation.

But as I mentioned, areas that we need to focus on, personal protective equipment; that's why I was personally scheduled and other managers last week to do those; tool