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, January 14, 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~~ Oversight Panel
William Dean, Vice Chairman, ~~MC~~ Oversight Panel
Douglas Simpkins, NRC Resident Inspector
Christopher Scott Thomas,
Senior Resident Inspector
U.S. NRC Office - Davis-Besse
Jon Hopkins, Project Manager Davis-Besse
Anthony Mendiola,
Section Chief PDIII-2, NRR

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 - Nuclear Maintenance
L. William Pearce,
Vice President FENOC Oversight
Mike Ross,
Manager - Operations Effectiveness

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MR. GROBE: Good afternoon. My name is Jack Grobe. I'm the Chairman of the NRC's Oversight Panel for the Davis-Besse facility.

Our purpose today is to discuss Davis-Besse's progress on the Return to Service Plan, as well as to inform the public of the NRC's activities at the Davis-Besse facility. This meeting is between the NRC and FirstEnergy Nuclear Operating Company; and it's open to public observation.

Before the meeting is adjourned, there will be an opportunity for the public to ask questions of the NRC staff and provide comments. We're having this meeting transcribed to maintain a record of the meeting and also to allowed others who are unable to attend the meeting today in person, the opportunity to review the information presented and discussed today. The transcript of this meeting will be posted on the NRC's Website in approximately three weeks.

Today's agendas and handouts are available in the lobby, as well as our monthly report. I hope you folks had an opportunity to pick that up and look at it. It's a monthly public document that the NRC publishes. And there is one other important document out there and that's what we refer to as a feedback form. It's a one-page form. It gives you an opportunity to provide comments on the format and content of this meeting and give us your feedback, so that we can improve the meetings.

As evidenced by the risers today, one of the comments last month in this facility was that folks couldn't see us. And now we have to be careful standing up, for fear of hitting our heads on the ceiling. So, hopefully, you can all see us today.

I would like to introduce the NRC staff that's here today. On my immediate left is Bill Dean. Bill is the Deputy Director of the Division of Engineering in our Headquarters Office and he's the Vice Chairman of this panel.

On his left is Tony Mendiola. Tony is the Supervisor in the Licensing Area in our Office of Nuclear Reactor Regulation in Headquarters.

And, on his left is Jon Hopkins. Jon is the Licensing Project Manager and Jon specifically works on Davis-Besse.

On my right is Scott Thomas. Scott raise your hand. Scott is the Senior Resident Inspector at the Davis-Besse facility; reports to work every day at Davis-Besse.

And, on his right is Doug Simpkins. Doug is the Resident Inspector.

Also, in the audience is Jay Collins. Jay is an engineer out of our Headquarters Offices on rotation at Davis-Besse. He's also working at the site every day.

In the audience is Jan Strasma. There is Jan. Jan is our Public Affairs ~~Office~~Officer in Region III; and is available to help anybody with public information questions.

Rolland Lickus. Where is Rolland? There he is. Rolland is our State Liaison Officer.

We also have Nancy Keller out in the foyer. Nancy is the Resident Office Assistant of the Resident Inspector's Office here at Davis-Besse.

And, of course, we have Marie Fresch again, who is our transcriber.

I would like now if there are any public officials, local public officials, I would like to give them an opportunity to introduce themselves.

STEVE ARNDT: Steve Arndt, County Commissioner.

JOHN PAPCUN: John Papcun, Ottawa County Commissioner.

CARL KOEBEL: Carl Koebel, Ottawa County Commissioner.

JERE WITT: Jere Witt, County Administrator.

TOM BROWN: Tom Brown, Mayor

of Port Clinton.

MR. GROBE: Welcome. Thank you for coming today.

Slide three, please.

During the meeting today, we'll summarize the two recent meetings we had in December, as well as recent inspection activities; and then turn the meeting over and ask FirstEnergy for their presentation.

As I mentioned earlier, we'll take a brief recess and then invite questions and comments from the public.

Lew, at this time would you introduce your staff?

MR. MYERS: Yes, thank you. At the end of our table at the right, we have Bob Saunders -- Bob Schrauder, I'm sorry. Bob is in charge of, he comes from our Perry Plant. He's our Support Director. Bob is now working on, with the engineering staff on our engineering issues.

Next to him is Mike Ross. Mike Ross is filling in for Bob at the present time in his capacity.

Jim Powers next to me. He's our Director of Engineering.

I'm Lew Myers, I'm the site Vice President, and Chief Operating Officer of FirstEnergy Nuclear Operating Company.

Randy Fast next to, on my left here, is our Plant

Manager; and has been with the plant for about a year or so, before that he was at our Beaver Valley Plant.

Mike Stevens next to him. Mike came to us from, from our Perry Plant, been here a couple years, Director of Maintenance.

And then Bill Pearce is next to him. And, Bill is our VP of Oversight.

In the audience also, we have Bob Saunders with us today. Bob is the President of FirstEnergy Nuclear Operating Company.

And also have Fred Giese with us today. Fred is the FENOC Manager in charge of Human Resources.

MR. GROBE: Okay, very good. Thanks.

Let's go to slide 4. At this time, I would ask Bill Dean to briefly summarize the December 10th, 2002 meeting.

MR. PEARCE: Thank you, Jack.

First of all, one of the things that we discussed at that meeting was the status of current NRC activities as they relate to inspections of Davis-Besse activities. In particular, we noted at the meeting that we had released inspection reports related to our inspection of Davis-Besse containment, extended condition efforts, as well as our efforts regarding reactor pressure vessel head replacement. And that those inspection reports were publicly available.

We also described the status of some of our ongoing activities related to things like Program Effectiveness, System Health Assurance, Organizational Effectiveness and Human Performance and Resident Inspector Activities; and noted that a key aspect of completing those procedures is the fact that they are contingent upon progress that the Licensee makes relative to their own programs in trying to restore those activities.

With respect to information that the Licensee provided to us and that's pretty much conveyed on the slide in terms of the key topics discussed. Under Management and Human Performance, we spent some time talking about the Safety Conscious Work Environment and Organizational Alignment, and efforts that the Licensee has to try and improve and solidify those areas, as well as insights gained from their Management Observation Program to-date, which they are using to determine how well safety standards and expectations are being translated and implemented to the field.

We spent some time talking about their Root Cause Assessment of Operations. The key aspect of that Root Cause Assessment was that Operations did not take a leadership role in assuring plant safety. And they described efforts that were in place to try and embody this in their site activities; and the greater involvement in things like plant reviews and maintenance work.

We discussed some of the near term goals that the Licensee had identified and need to be completed in terms of supporting potential plant restart; and they described a sequence of events, including reloading the core, performing integrated leak rate test of containment, reaching normal operating pressure and normal operating temperature in order to do a leak test of the Reactor Coolant System, with some particular focus on areas where they had done work in the Reactor Coolant System as well as the bottom of the reactor vessel head.

Under Containment Health area, the Licensee noted that they felt they had completed the discovery activities, though there still was a substantial amount of effort needed to characterize corrective actions for those things that they identified, and that major work was in progress on components, such as the containment air coolers, modification to the sump in containment and paint and coatings activity within containment.

In the System Health area, it was noted that many reviews had been done and were awaiting Senior Management review. That there were, through their assessment, they identified several key design issues, including things like calculational problems, service water temperature issues and diesel loading. That they were taking these lessons learned and conducting a thorough, more thorough assessment of 15 key safety systems, and that there would be a meeting on the 23rd of December in the Region to discuss these plans, and Jack will summarize that meeting in a few minutes.

Under the area of Plant Programs, they noted much of their review work had been done. A key aspect of that was development of a Integrated Leakage Program, which would be one of the things that we will assess.

Over there on the wall facing the lake are some performance indicators and trends. And at the last meeting, the Licensee utilized the same approach towards showing where they were relative to what we call discovery versus work-off rate. And the Licensee used those matrixes as evidence that they believed that they had reached a key milestone, that being the rate of work-off was now exceeding the rate of work identification.

In other words, they had turned a corner, as you will, in terms of discovery of issues that needed to be assessed and corrected, and that they are now on an increasingly improved trend of effecting corrective actions. And so, that will be something that certainly we'll talk about some more today.

Finally, in the area of realignment of resources to get operational alignment; fairly soon before a previous meeting, the Licensee had taken some action to reduce the amount of contractor work force that existed on the site. And we discussed it at some length the intent of that.

And, for example, reducing reliance on contractors and bringing plant staff more in line, in terms of what they're trying to do organizationally and operationally; and, the fact that we felt that that change warranted some close attention and monitoring, and that the Quality Assurance Organization had instituted a review of plant activities associated with that effort. And we hope to hear some more about that today.

So, that pretty much summarizes fairly quickly the meeting from last time.

You notice at the bottom of the slide, the transcripts of the meeting, I think -- are they available now? Are available now on that Website and that page address is given there. Thank you.

MR. GROBE: Thanks, Bill.

As Bill indicated, if we could go to the next slide, I'm going to briefly summarize a specialized, a specially focused meeting that we had on December 23rd. That meeting was particularly focused on the engineering and engineering specifically design issues that the company was identifying and how they were going to resolve those issues.

FirstEnergy described three separate activities that they had under way to continue identifying issues and address the issues that they've identified to-date.

To step back a little bit, let me previously summarize the activities that FirstEnergy had previously undertaken. They performed a detailed design review on five risk significant safety systems. And in addition to that, they performed a functional review, a less detailed, less design focused review on 31 additional systems.

They completed those reviews and identified a number of issues. The three activities that they have now undertaken, the first one is simply the fact that they have to address all of the engineering issues that they've identified to-date, determine whether or not those issues affect the functionality of systems, and implement appropriate actions to address those deficiencies.

The second focus area that they have under, have undertaken currently, has to do with the fact that through the course of doing the detailed design reviews, they identified six engineering areas, specific technical issues, that they believe required a broader look across other systems. And, on the 23rd, FirstEnergy described the topical areas and how they're going to accomplish those broad foundational-type reviews in those engineering areas.

And the third focus area was an expansion of the design review. They identified a number of design issues that caused some concern in their minds, regarding whether or not there is additional design issues out there that they had not yet identified. So, they chose to expand the scope to 15 systems. So, they're doing, currently have under way detailed design review of an additional number of systems, so the total of 15 systems will be reviewed.

Throughout this entire process, they'll be continuing to evaluate the findings that they identify, and how those findings might translate into the need for additional evaluation.

Currently, we have two Engineering Design Inspectors out of the Region III Office in Chicago that are in Virginia where that work is ongoing as we speak, performing inspections of those activities.

As indicated at the bottom of this page, the transcript of the 23rd meeting is not yet completed, but it will be shortly posted on the NRC Website.

Can we go to slide 6, please.

I would now like to just briefly go through our Restart Checklist and summarize the recent inspection activities we've accomplished.

The first checklist area is, focuses on root causes; and specifically the root cause of the technical issues that resulted in the head degradation, and the root cause of the organizational, programmatic, and human performance issues.

The review of the technical root cause is ongoing. I expect it to be completed this month, and we have not identified any significant concerns with respect to restart regarding the technical root cause.

I would like to talk about the organizational, programmatic issues a little bit later when we get into the human performance area of the checklist.

The next slide describes the, what we call the Adequacy of Safety Significant Structures, Systems and Components. There is a number of areas that are captured under this checklist item. As I mentioned earlier, inspection is ongoing in the Systems area, specific design inspection work. There have been no inspections completed in this area since the last time we met publicly.

Adequacy of Safety Significant Programs; when we undertook this inspection in October, several of the programs were completed and we reported out in a previous public meeting on our inspections of those programs. The remainder of the programs, with the exception of the Radiation Protection Program, have been completed by the company, and our inspection is scheduled to examine those programs.

Since the last time we met publicly, we've issued a report regarding Radiation Protection Program. It was actually two special inspection reports that were transmitted to FirstEnergy under one letter. These are the inspections that were precipitated by some release of radioactive materials that occurred last spring.

The inspection focused on two aspects of the events that led up to that release. One was the off-site consequences of the release of radioactive materials that occurred, as well as the organizational deficiencies that allowed that to occur.

We had one violation that we cited in that report. It was characterized as what we call a green finding. What that means is, it's of low safety significance. We concluded that the material that was released to the public, in the public domain, was not of health concern to members of the public.

The second aspect of that inspection focused on the workers and the work control of their radiological protection while they were working in the plant. We had two violations, two findings in that area of the inspection. The first one concerned the company's failure to adequately assess the working conditions prior to commencing work. That was characterized as what we call a white finding. That means it has low to moderate safety significance.

The reason that finding was elevated above our lowest level of significance was because there was a substantial potential for those workers to experience an overexposure in excess of our limits. In this case, they did not experience that, but the work controls and the assessment of the radiological conditions was such that it was clearly possible for them to have experienced an overexposure.

And those are not good situations to be in, so that violation was characterized as what we call escalated enforcement or white finding. And there will be additional inspecting work in that area.

The third finding, second finding in the area of worker control had to do with the assessment of dose of the workers. These workers were exposed to an unusual type of radiation that you don't often find in nuclear power plants. It's what's referred to as alpha radiation. It comes from certain elements that are found in the fuel, they're call transuranic elements.

When you have a worker exposed to that radiation, there is different type of dose assessment techniques that have to be used, and the company had deficiencies in that aspect of their dose assessment. That was also characterized as a white finding, because it was more significant.

So, that is, those are the results of the Radiation Protection Special Inspections. As you will recall, we added Radiation Protection to the Restart Checklist in October after we completed those inspections. Those inspection were actually completed in the middle of October. And, because of the findings from those inspections, the panel determined that the Radiation Protection Program should get additional evaluation by the NRC prior to restart.

Go on to the next slide.

This area is the Adequacy of Organizational Effectiveness and Human Performance. There will be a report; hopefully it's on my desk right now; that's issued in the next week or so, addressing these areas. When we completed this inspection, we were able to address approximately one third of the areas that we need to address prior to restart.

At that time, two of the Root Cause Analyses were done. One concerned the Quality Assurance Organization's effectiveness and their contribution to what resulted in the shutdown of Davis-Besse plant. And the second one was a specific analysis of what we call Organizational Barriers. It's a barrier analysis. It looks at all the different things that could have prevented this problem from occurring at Davis-Besse.

There was a number of other assessments that the company had under way. One in the Engineering area; one in evaluating the Corporate Nuclear Oversight Board. I can't recall all of them right at the moment, but those four were not completed at the time of this inspection. They are completed now. And I believe they've been submitted on the docket, and they're publicly available for interested members of the public. This inspection will be ongoing, and we'll examine those other areas in the future.

The findings to-date evaluating the two assessments that we were able to complete, we found that the assessments were comprehensive; that they identified, we believe, appropriate issues; and appropriate corrective actions were identified to address those issues.

As I said though, the inspection is only approximately a third complete, so there is additional work to do in that area.

On the next slide, we have what we call Readiness for Restart. That's three particular areas that we're going to be focusing prior to restart. These inspections have not yet begun.

The next slide, Licensing Issue Resolution and Resolution of Confirmatory Action Letter. The remaining three American Society Mechanical Engineering code relief requests have been issued by our Office of Nuclear Reactor Regulation. So, those three issues have been adequately resolved since the last time we met.

And, of course, prior to restart approval, the company needs to meet with us: and in a recent letter that we issued updating the CAL, we described in more detail the letter that the company intends to send to us when they believe that they're ready for restart, and the meeting that will occur at that time, if and when we get there.

We have a number of continuing NRC inspections. As I mentioned a moment ago, the Organizational Effectiveness and Human Performance Inspection is ongoing. As I mentioned a little bit earlier, System Health Reviews, that's the design issues is the principle focus of the inspection work we have ongoing in that area.

Safety Significant Programs, we have a number of programs yet to review. And of course we have ongoing Resident Inspection. Our Residents inspect on a six-week cycle. That inspection cycle completes today. We'll be exiting with the company tomorrow on the inspection findings from the last six weeks and that report will be issued in about 21 days. We'll be discussing the results of that inspection at our next public meeting.

Before we go on, I would like to briefly mention a very important meeting we have coming up at the end of

January. It's scheduled for, currently for January 30th, I believe at 10:00 in the morning. It will be conducted in the Region III office.

We'll make availability to attend that meeting both through video teleconference with our headquarters office for anybody in the Washington area that's interested; also through audio teleconferencing for anybody who is interested in this area to sit in on that meeting, if they're not able to travel to Chicago.

The focus of that meeting will be Safety Culture; one of the principal root causes that resulted in the head degradation going undiscovered for a number of years at Davis-Besse was the safety focus or safety culture of the facility. The company has determined that they're going to develop a more clear and focused method to assess the safety culture of the facility, but that assessment will be ongoing. It will start immediately and go on well past restart.

And, on the 30th, they're going to present to us the context of that safety culture assessment, what types of indicators and assessment tools they're going to use. So, that's a very important meeting, and I look forward to that.

Unless there is anything I forgot -- oh, okay. Scott just reminded me that the last inspection site were completed December 28th. So, I apologize for that.

With that, let me turn it over to you, Lew, for your presentation, with the information you want to share with us today.

MR. MYERS: Thank you very much.

For the public we're going to try to do some things a little different today. Our desired outcome is to demonstrate that we continue to make progress to support the restart of the plant.

We're going to have Randy Fast our director, our Plant Manager talk about that.

The 350 process, Clark Price talked about last month, will discuss the 350 process, and status with you.

The Corrective Action Program, the Corrective Action Program is probably one of the most important management programs that we have at our plant. And it's designed to identify our problems and give management a way to keep them visible, classify them, prioritize them and fix the problems that we find on a daily basis.

That program was one of the major programmatic breakdowns that we had. We've done things to enhance the program since shutdown. We've done things to increase the line management involvement and ownership. Dave Gudger is the owner of that program. He's one of our first line managers.

We're going to have him present to you today the status of the Corrective Action Program that we've been using since the shutdown, and we've got to make that program work well in order to restart the plant.

The Reactor Coolant System and its integrity is why we're here today. You know, I believe that we've got some, a new program in place, that's different, a different approach than what we've seen at D-B before, and we think in the industry. Jerry Lee, one of our lead engineers and the owner of that program will discuss that today.

Next desired outcome, if you will, is to demonstrate that we're getting ready to reload the reactor core, fuel reload, if you will.

We'll discuss Fuel Reload Readiness. Mike Roder is our Operations Manager. He will come up to the microphone and discuss that.

Fuel Reliability is a really important part of restarting the plant. And when we reload the core, we need to make sure that our fuel is going to be very reliable. We have Dan Kelley with us. Dan is our Director Engineer. His degree is in Nuclear Engineering, from the University of Cincinnati. We think we have him ready to communicate with the public. And he's going to talk about our fuel, and what he's done to ensure that fuel integrity is good and better than when we initially planned, as a matter of fact.

Greg Dunn is going to talk about the Integrity Assurance, and he will spend some time on that today.

Finally, we want to discuss the Human Performance and Safety Culture. What we're going to try to do here is give you a briefing, if you will, on some of the things we'll discuss at the January 30th meeting. And I'm going to talk a little bit about the Safety Culture.

And what we do at our plant is we tend to separate Safety Culture and Safety Conscious Work Environment. And Safety Conscious Work Environment is a really important part of getting people to be able to identify problems. Corrective Action Program is a key part of that, but we have some other ways that people can bring up issues also. Bill Pearce is going to discuss Safety Conscious Work Environment.

Finally, we're going to provide you an update, if you will, on the integrated schedule, if time permits, and Mike Stevens will talk about that. Okay. That's what our desire is today.

MR. GROBE: Okay.

MR. MYERS: Now, before we get started, I thought I would take a moment and just clarify terms with the public. We're going to use some terms called Mode 1, 2, 3, 4, 5, and 6.

Mode 6, if you will, is when we load the core or the fuel back into the reactor vessel. The fuel is now in our spent fuel pit, and we move it from the spent fuel pit area over to the reactor vessel. That's an activity we're getting ready to do.

When we do that, we normally do it under at least 21 feet of water. We're having Restart Readiness Review meetings tomorrow to make sure we're ready to reload the core. Not to restart the plant, but to reload the core. And we want to make sure we are ready. That's Mode 6.

Mode 5, now, is a different mode. Now, the only difference between Mode 5 and 6 is we go in and we hook up all the electronics and all the control rod drives that we use to control the reactor with and put the reactor head down and bolt it down. When we do that, the reactor vessel is a, becomes a pressure boundary. It will hold pressure, much like a steam pot in your house, something like that, ready to hold pressure. So that's a changing condition in our plant. We refer to that as Mode 5.

The startup, startup and heatup on reactor coolant pumps is Mode 4. What that is, that's not starting the reactor up. That's starting the reactor coolant pumps up. Randy is going to talk some about the reactor coolant pumps later on.

What you'll see is each one of those, these coolant pumps circulate about 9,000 gallons of water each. And if you circulate all that water, you create what we call pump heat; several megawatts of pump heat. With that pump heat alone, you could heat the reactor up to normal operating temperatures and pressures, which is normally about 2250 pounds, 600 degrees or so.

So, we intend to do that sometime to do a leak check early part of March. And that's where you start to heat up. And, then as you get full system temperature and pressure, it's called Mode 3; that's normal operating temperature and pressure.

Then, finally, you take the reactor to critical. We're going to talk some today about, that is about the reactor fuel assemblies. When we take the reactor critical for the first time, that's called reactor startup, Mode 2.

And then, finally, Mode 1 is power operations, and that's reactor power of 5 percent, a very rigid, licensed nuclear power. Okay.

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

MR. FAST: All right, thank you, Lew.

Good afternoon. I'm pleased to update us on our restart preparations. In that vein, we really have three key activities that I want to focus on. Certainly, we're doing many, many activities, but these three really highlight some of our preparations for restart, and this is our commitment to safety.

So, I'm going to get down from the stage. I have a series of pictures that I want to go through and I want to be able to at least show, show you where we are on these three key areas, and the preparations that we've made.

Those are on the Containment Emergency Sump. Certainly, every meeting we've had a good bit of discussion with that. I've brought a little show and tell. We'll talk that through. We'll talk about the Reactor Safety Seal Plate. Show some pictures, why that's important. And as Lew identified, we'll talk about Reactor Coolant Pumps.

All right, first picture, please.

What we have is, down in containment at the 565 foot elevation, that's down in the bottom of the containment, is a bunker. It's a concrete bunker, and it's called a sump, much like in maybe the basement of your house, you have a sump where water will collect and you can pump it out. This is an area in the lower elevation of containment where water can be collected.

Under design basis accident, water is collected in this area and is recirculated through safety pumps to assure long term cooling. What's important about this is the as-found condition at a sump with a screen square footage area of around 50 square feet.

Now, what that demonstrates is the ability to be able to strain out any miscellaneous debris that would be in containment and recirculate through these pumps. We found that that did not meet industry standards and we wanted to take a leadership role in improving our sump design.

So, what we see here is one of our iron workers, the craft people that are doing this work. And he's standing on top of what we call W-4, stainless steel I-beams. Those I-beams are providing structural support in that sump.

Sitting there, what we have is two, what we call, kind of affectionately call, top hats. What those are is a strainer; and I've got one up here. I'll just describe a little bit about it.

As I had talked about the original design of the sump had about 50 square feet of sump area. This is a single top hat strainer that has about 15 square feet of surface area per strainer capability. It has an inside and an outside, kind of like an oil filter in your car where you have a dual filter, they had years ago, you know, the auto manufacturers came up with this dual filter arrangement.

That's kind of what this is. You have filtration from the outside, as well, water can come up -- and certainly at the break or afterwards, come up and take a look at this -- but water can also spill into the inside. So, you have about 9 square feet of surface area on the outside, about 6 square feet on the inside.

Well, that's 15 square feet. That doesn't sound, that's less than 50. There are 27 of these that will be installed as part of that top hat on the upper sump. Now, the upper sump, that's about 400 square feet. The lower sump as well has a series of pipes that are drilled, these are 3/16 holes. So, actually anything less than 3/16 inch would be strained out.

So, this series of top hats are installed; the 27 on top; and there is, there is an end bed here that goes down underneath the reactor vessel, and that contains the additional, about 800 to 900 square feet of sump that will be available.

Next picture, please.

Okay, this is just a series of photographs of the iron workers again welding in the supports associated with that emergency sump.

Next picture.

MR. GROBE: Randy, before you go on. Is the design change completed for the emergency sump modification that you're describing?

MR. FAST: Jack, we have a

series of design changes. What we're doing is working with our primary vendor on this design, and what we've done is work through a series of changes that represent the engineering requirements to advance this project. So, not all of the design work is completed. All of the conceptual design work is completed, but we still have a number of packages that will come.

The most recently I reviewed was about a week ago, and it provides for all of the structural steel down adjacent to the reactor vessel. So, we still have some additional design change work to do.

MR. GROBE: Okay, when will that design work be completed?

MR. FAST: I was going to say, I think --

MR. POWERS: Prior to restart.

MR. FAST: Yeah, prior to reactor startup; and I'm thinking in my head around the end of February.

MR. GROBE: Okay, thank you.

I think the modification you're making to the sump is very important. Certainly, you're going to provide substantial additional design margin for the sump strainer, but because of the importance of the sump, the risk significance of this one piece of passive equipment, it's just a pit, essentially, to the functioning of all safety systems; we added this to the Restart Checklist.

And we have to perform a detailed inspection, my expectation is our staff will perform a detailed inspection of that design work as well as the installation, the results of the installation work. So, that design package will be ready for our inspection late February?

MR. FAST: That's when all of the physical work will be completed.

MR. GROBE: Okay, when the design, the engineering work be completed, so we can start looking at the design?

MR. POWERS: Jack, we don't have that yet.

MR. FAST: I don't have that, Jack, we'll get back with you on the specific dates.

I was going to identify -- let me go a step further, just to identify from a technical specification requirement standpoint, as you had identified with system, safety related systems that have to be in service, Lew briefed us on modes. Those would be required for Mode 4; however, administratively as part of power defense in depth, we have a requirement that we have functionality on the sump. And we will demonstrate functionality on the top portion of the sump prior to fuel load.

MR. GROBE: I understand that, but design inspections, as you're well aware, are not trivial; they take time. And we're not going to look at it until you're done with it, so as soon as you're done with it, we need to get a hold of that design package and be able to begin our inspection in that area.

MR. MYERS: We're looking at the schedule up here, it looks like the first part of February.

MR. GROBE: First part of February?

MR. MYERS: Yeah, the design work will be done.

MR. GROBE: Okay.

MR. FAST: I may have been thinking about then as well the construction. Obviously, we'll get you the specific information, so that we can schedule those inspections.

MR. GROBE: Okay.

MR. FAST: Okay. The next area that we want to talk about is the seal plate. Now, what's important about the seal plate is there is an annular space, that's a void space between the reactor vessel and the reactor cavity. And for the life of the plant, and as most plants coming on line, you would provide a temporary seal. That was a stainless steel plate that would be bolted down and sealed, so we could flood up. We flood to 23 feet to ensure that we can move fuel from the spent fuel pool to the reactor vessel.

What we've done is incorporate a permanent design, a permanent cavity seal. And what you'll see here, and I've got some additional detail in pictures, but we have supports. That's these gray square structures, you see three of them here in the picture. That's for structural rigidity.

Then you have, what you have is a cantilevered box that runs in a circle around the reactor vessel. That provides the structural support.

And then this area is the seal membrane. This is all welded in place and it provides a permanent seal, so that as we flood up, there is no leakage path from the reactor cavity down underneath the reactor vessel.

So, this is certainly an improvement. And there is a couple of things I wanted to mention. One is because this is an evolution that we go through each time we go through a refueling operation; by putting this in permanently, it does not require the time, the effort, and the dose that our workers receive each and every refueling outage. This is now permanent and there will be no dose going forward.

Next slide.

MR. MYERS: Maybe from a safety culture standpoint this is a mod our safety culture people have been asking for, for a long time.

MR. FAST: Yeah. Actually, we did this over at our other station, at Beaver Valley on both units. And the work force, they see this and say, why are we, the rest of the industry has gone and put a permanent seal in, and our workers have reached out.

In fact, I talked to a health physics supervisor the other day. I just asked him, because I always want to check for understanding and verify that our folks appreciate the things we're doing and we are developing the right safety culture. I said, is this important? He said, you betcha. Absolutely. That maneuvering heavy steel plates with gaskets, bolting them down, collecting that dose represents a challenge on our folks.

So, putting this in permanently one time, it's, it's a fail-safe design and it really provides the right standard. And our folks appreciate that. So, it's a significant level of effort to put this in, but it has long reaching improvements and benefits to the station.

Here we have one of our boilermakers. I talked before about iron workers. The iron workers work with the steel. Boilermakers -- Lew's a boilermaker.

MR. MYERS: Yeah.
MR. FAST: I think, Jack, you're a boilermaker.
MR. GROBE: Perdue Boilermaker. (laughter)
MR. FAST: As I was a kid, I didn't know what boilermakers were. Boilermakers make water tanks. You go around the country, you see these water tanks. Boilermakers always make them. Well, that's one of their contributions to society. But, boilermakers really work with steel; and in this case, putting that cavity seal is a boilermaker activity.
Here we have a boilermaker actually measuring with an indexing fixture to make sure that the clearances are exactly right, very exact and demanding tolerances on this, because as it goes through heatup and cooldown, we want to make sure we have the proper flexure and rigidity on the system.
Next slide, please.
Here is a, this is a tool that we used for, to keep our dose as low as reasonably achievable; and what it was, is a movable shield platform. Down in this annulus space is lead blankets.
We did two activities to make sure that our folks maintained our dose as low as reasonably achievable; one is

we placed the reactor vessel head on the vessel. That had two-fold functioning. One, verify proper fitup, but additionally to reduce ~~stringing~~ streaming radiation or the dose to our workers.

Additionally, we put in this shield platform. You can see it's on a wheel, right here where it can rotate around, adjustable on this side, kind of like a hand crank like you have on the front of ~~our~~ your boat. That would level it, put the shielding below, and allow then the workers to have that radiation blocked while the guys were welding the seams on that cavity seal.

So, it just shows the level of effort we're going to with our craft and with our engineering staff to keep our dose low and make these, incorporate these design changes.

MR. MYERS: What is that big thing on the righthand side?

MR. FAST: That's the reactor vessel head. So, this thing actually comes right over adjacent to, it's actually, this is the head.

MR. MYERS: Okay.

MR. FAST: Okay. This is part of the, adjacent to the reactor vessel head, the flange area. This is truly just a barrier, in this case the studs, which are bolted down as part of Mode 5 that Lew talked about, would be just on the other side of that barrier.

So, this will connect. It bridges from the head over to the cavity, and that provides then the ability to flood up to 23 feet for fuel load.

Okay, the next area and the last area we want to talk about are reactor coolant pumps. This whole assembly is a rotating element, rotating assembly. This is a Byron Jackson pump. And as Lew said, it pumps about 90,000 gallons a minute. That's lot of water. That would, probably just a regular swimming pool in your backyard; it would fill five of those in the course of a minute. So, it's a lot of water.

This portion right here is called the impeller. And you see the veins on the impeller. Now, this picture, I have a better picture a little closer up. But this is what is actually rotating as part of the pump. Just like a water pump in your car that's circulating coolant or fluid through your car to keep it cool, this pump is then pumping reactor coolant through our Reactor Coolant System. There are four reactor coolant pumps.

Now, we actually elected to do preventative maintenance early in its cycle. In fact, let me give you the periodicity. It's about 175,000 hours. Every 175,000 hours, we go in, disassemble and do an inspection. We were only at about 103,000 operating hours on this. That's about 20 years of operating. And we went in to look at these on the 1/1 and the 1/2. So, that's two of the four reactor coolant pumps.

This is a seal cooler, so we circulate water through a seal package, and that seal package actually provides isolation from the Reactor Coolant System then to the environment of containment.

Next slide.

Here we've got really a better picture. I like this one a little better, because it shows a closer up. And you can see the veins of the pump. Here's the bottom of the pump impeller, and the top portion. This bolts down. This is the flange that actually bolts into the casing for the reactor coolant pump.

So, this was elective maintenance that we did. It's part of our preventative maintenance program. We pulled that up early, so we could get a good look and see what the condition of our reactor coolant pumps were.

And lastly, this is a reactor coolant pump motor. Now, just like with any pump, you have to have a prime mover, something that drives that pump. So, what do you drive that pump with? What do you think it takes to drive 90,000 gallons a minute of fluid? It's a reactor coolant pump motor. This runs at 13,800 volts. This thing is about 9,000 horsepower. This weighs about a hundred thousand pounds. That's more than 25 average cars in weight. Why? Because there is a lot of copper in this motor.

This is the actual air box. This is the stater. So, that's the outside of the motor. And then inside of the motor running up and down, this is a vertical motor, is the rotor. And that rotor turns at 1800 RPM, and that drives the reactor coolant pump itself.

So, this is actually going back into the, what we call the D-ring. You call it a D-ring, because it's in the shape of a D. Two sides on either side of the reactor is the D-ring, and the two pumps, two motors on each side of the D-ring.

So, this is a significant amount of work for the station. It's been done well. It's been done without injury. And it's been done within the dose budget that we put in place. And we're just about done with this. In fact, we are ready to establish Reactor Coolant System integrity for fuel load; and then, subsequently, we have to couple up the pump to the motor.

So, I just wanted to at least demonstrate some of the work we had been doing in the plant. Folks are working hard and ~~marking~~ making a lot of progress.

MR. MYERS: What do we lift the motor with?

MR. FAST: The question is, what do we lift the motor with? We use the polar crane. The polar crane is rated at 180 tons. So, this is a crane that extends across the periphery of the top of the containment, and reaches down and lifts that motor. So, 180 ton crane it takes to lift 100,000 pound motor.

Other questions?

MR. DEAN: Randy, could you spend, some of the things we discussed in the past as significant work in containment has been the refurbishment of containment air coolers, as well as the substantial effort relative to coatings and painting of containment. Can you update us on where we are with those?

MR. FAST: Sure, Bill. Quickly on the painting project, we have completed both core flood tanks have been, paint has been removed and replaced. We've replaced or repainted all of the containment air cooler supports have been completed, including the fan motors and the fans themselves.

In fact, we're going back in, I was in containment yesterday, we're putting the first of the cooling coils in.

We've removed paint from the majority of the service water piping. We still have a little bit to do yet. And the major part of this project is up in the overhead, is the dome. It's better than 50 percent done. We've completed down through the lower containment spray ring. And we're continuing to remove that paint from the containment dome with our contractors. So, that work is continuing on.

The containment air coolers, just a quick update on that; the motors are installed on each of the three containment air coolers. As we talked before, those are the large air-handling devices that take air from containment, it draws it in through -- each containment air cooler has twelve cooler assemblies, much like a radiator in your car. However, this radiator weighs 1100 pounds. It's a little bit bigger. Stainless steel. It's built to ASME requirements, because it's a safety piece of equipment.

So, we're installing those. As well, the drop-down dampers. There is a series of dampers that come underneath the containment air coolers. Containment air cooler number one, the drop-down damper is installed. The number 3 is actually rigged up and is probably being lifted today. I haven't been in today, but that was the plan. And then the last is number 2; that one is being delivered to the containment and that will be installed.

Additionally, we have the plenum, which is the outlet where we collect the air that is recirculated through containment. That's all stainless steel. The floor is not completed, but a lot of the portions are done; and the side walls are starting to go up on that. So, we're making pretty good progress in both painting and the containment air coolers.

Did I miss anything, Bill?

MR. PEARCE: No, thank you.

MR. GROBE: Just a quick follow-up, Randy. I think last time we talked about this subject, but there is some question on what your final approach was going to be on the unqualified coating that was on conduits inside containment. What's your final decision on how you're going to approach that as far as resolution and how do you stand on that?

MR. FAST: Well, engineering has an action to look at a transport analysis that we've contracted. We have to weigh the unqualified coatings in containment against the ability to strain or filter out, as we talked about on the first project, the emergency sump. We need to make sure we're bounded by the amount of unqualified coatings that could get into the sump area and still ensure that we have adequate positive suction for those cooling pumps.

That is still under review. I can't give you specific information on that, but I think by the next meeting we can give you some very specific information about what that total surface area is and how that will be bounded by our design.

MR. GROBE: Have you decided then to not remove any of the coat-- any of the conduits prior to restart?

MR. FAST: We did the service water piping. We are not doing conduits at this time; however, we have an operations initiative where some of our nonlicensed operators are working with engineering to do some local removal of conduit paint.

MR. POWERS: To add to that, what we're doing, Randy described the ~~nonoperator~~ auxoperator class, so we have containment working with us. This week we're looking at the methodology for removing that unqualified coating of conduit. We want to do it carefully. And the method of cleaning, we don't want to introduce any other problems, for example, stripper chemicals that might be applicable, we're evaluating those; we're also evaluating high pressure spray laser washing to remove it, but we don't want to introduce water into the joints of the conduit system. So, this is some of the consideration we're going through to look at the best way to remove and the most efficient way to remove those coatings. So, these meetings are ongoing this week.

MR. GROBE: Do you expect that you would be initiating coating removal on conduits before restart or is that something you'll be doing in the future?

MR. POWERS: Yes, I would expect we would, Jack. If you look in containment now, as a matter of fact, there is a lot of sponge blasting activity, for example, that we're using to remove coatings on ~~surface~~ service water piping, and we would expect that we would also be removing coatings on conduit. We were just grappling with what the best approach is to do that.

MR. DEAN: Jim, you mentioned localized areas there. Is there some factors or some criteria as far as your focus on some particular areas of removal?

MR. POWERS: Randy described the transport analysis we're preparing, supports our sump design. What that transport analysis means is, in the containment after an accident you have water flow both from sprays above as well as any leaks or water condensation. That water moves through containment down through lower levels. As it does, it may transport along with it paint chips, dust, particulates and such.

And some areas of containment are more susceptible to that water flow than others. For example, some of the conduit is located in areas where there is no water spray that would affect it. Then, the likelihood of transport of any unqualified coating chips to the sump is minimal.

So, we're focusing on the areas that would have the highest potential for any sort of paint debris to be transported to the sump.

MR. DEAN: Thanks, Jim.

MR. FAST: Any other questions? Okay. With that, I'll turn it over to Clark Price.

MR. MYERS: Jack, I would like to make a couple points.

As we're going through Randy's presentation, we noted that the lifting of the reactor coolant pump motors, the reactor coolant pumps themselves, work inside on the, on the reactor vessel head. The work horse in our containment is our crane, our polar crane. And, Randy kept showing pictures.

That's one of the things that we discussed for about an hour one day in one of our public meetings and that crane now is used on a daily basis. And, in fact, I've been monitoring the use of it. It seems to be, the refurbishments that we've done are working extremely well. We've added a lot of new technology to it.

MR. PRICE: Okay, I guess it's

my turn. My name is Clark Price. As Randy stated, I'm the owner of the Restart Action Process at Davis-Besse.

One of my responsibilities is to coordinate the plant's restart activities associated with the NRC 0350 Restart Checklist; and today, I would like to provide you with an overall status of our progress to-date.

Under our Return to Service Plan, we've developed several Building Blocks to detail our restart plans. Listed on this slide are several significant milestones that we have completed in those actions.

I'm going to do a little movement too. I'm going to go over to the charts and discuss some of these milestones, and looking at the charts at the same time. If I get in your way, please let me know.

One of our Building Blocks is the Containment Health Assurance Plan, which we developed to address the effects the boric acid environment had on our containment structure, systems and components.

We completed all of our discovery restart activities associated with that, including comprehensive walkdowns and inspections of the entire containment building.

We documented everything we found on condition reports, which is what is shown on the first chart here. As you can see, we are making progress. We're working down those condition reports and doing the necessary evaluations that are necessary to identify the corrective actions that are necessary to complete what we found. And those are identified in the second chart here.

These evaluations generate, well, these corrective actions are then, they go through the Restart Station Review Board for classification to determine what corrective actions are required for restart and which can wait until after restart. And once they are determined to be restart, they're put into our schedule and then implemented by the assigned organizations.

So, what you can see here, and what Bill Dean mentioned earlier, is part of what we discussed last month, is we peaked out in late October and November time frame in a lot of our discovery activities; and you can see that in the chart. What that basically says, is the incoming conditions that we identified, we're working those off now at a greater rate.

As a matter of fact, now as we've gotten through discovery our incoming is almost nil and we're continuing to work off the condition reports. We need to work those off and turn those into corrective actions and get about working on those. And, that's what you see.

In the second set of two charts here are Program Compliance Building Blocks. We've completed both our Phase 1 and Phase 2 Program Reviews. The Phase 2 Program Reviews are specifically on the NRC's 350 checklist. Again, we generated condition reports out of all those reviews. That's shown in this chart here. And then those condition reports are evaluated and turned into corrective actions, which are shown in the next chart.

Again, you can see in both cases, we're making progress. We did -- the holiday season did have a little bit of a negative effect. You can see we plateaued on some of our efforts, but we're gearing back up and we should be making good progress through January.

The third set of charts here of two, are on our System Health Assurance Building Block. We've really completed actually four major milestones in our System Health Reviews. Early on, actually last year in the spring, we completed our Operational Readiness Reviews, but more recently what we completed is the Boric Acid System Walkdown Outside of Containment.

One of our Restart Checklist items is to evaluate the potential effects of any leakage we may have had on boric acid systems outside of the containment building. And, we went through that process, we did all the inspections and walkdowns. We've completed those, and those are part of the System Health Review Condition Reports that you see here.

Another major effort that was partaken underneath the System Health Reviews, was the System Health Readiness Reviews, where we reviewed over 31 -- we reviewed 31 systems that, which Jack mentioned earlier, that we reviewed of our safety significant or risk significant systems.

Finally, we've also completed our Latent Issues Reviews on five additional selected systems, and those are also included in there. I guess this will probably be the right time to note too, Jack Grobe mentioned we met with NRC on December 23rd and discussed our plans associated with some of the issues we identified in this process that we have to develop some further plans for; which we have, and we're currently implementing those plans.

Those plans like these will go through the same process of identifying conditions, documenting those condition reports, and then evaluating them and developing the corrective actions that we need to take prior to restart to resolve those issues.

Again, you can see we're making good progress on our condition report evaluations. And corrective actions, we need to bend the curve a little bit. We've got a lot of them out there. There's a lot of work and lot of restart activities identified through the, through these reviews.

Then, finally, the last two graphs are the total population of the condition reports and corrective actions that we've identified to-date that are all required, that these are the populations required for restart. And you can see these two curves. These include the other Building Blocks we have as well as corrective actions and condition reports from normal day-to-day plant operations.

MR. GROBE: Clark, have you -- I haven't seen those charts with projected closure rates and anticipated completion of those activities. Do you have charts that show where you've man-loaded the work effort that's necessary and projected out when those activities are going to be complete? When I say those activities, I mean completing review of the condition reports so you know what corrective actions have to be done and then completing the corrective actions.

MR. PRICE: Right. Yeah, we have, we have a couple major contractors working on our condition reports and helping us to manage those. And they have charts that they put together that they bring into the senior management team that will identify work-off rates and work-off curves on these condition reports.

In addition, they are scheduling all of those evaluations based on what we've identified as mode restraints associated with each of those condition reports.

MR. GROBE: Would it be

possible to share those work-off reports with us?

MR. PRICE: Yes.

MR. GROBE: Are they meeting the work-off rates as projected?

MR. PRICE: I would say for the last week, we thought we would get a little higher production than we did. Most of them, I believe it's on the performance indicators that we supply; there is some expected completion dates in mid February, mid to late February, for completion of all the condition report evaluations.

MR. MYERS: You have to watch out for those numbers though. In that, one of the, you look at, made you go through these things, some are procedure changes, some are let's repack a valve or clean up a little rust. Then you have another one, let's rebuild a reactor coolant pump. And the reactor coolant pump is probably worth half the others put together.

So, one of the things the management team has done, we scrubbed all the CRs and CAs in the past few weeks, so the top ones there.

Do you want to talk about that effort?

MR. GROBE: What I was going to say, I agree with you, Lew. Just looking at strictly numbers is not a complete --

MR. MYERS: Picture.

MR. GROBE: -- impression of what's going on there. That's why I like to focus on man hours of work activities. One corrective action might take 10,000 man hours to complete; one might take five man hours to complete. You have those type of work-off rates with man worked hours loaded projections on them?

MR. PRICE: Yes, I do.

MR. GROBE: I would like to see those.

MR. PRICE: Okay.

MR. DEAN: Sorry, Clark, before you continue, I just wanted to comment, maybe ask you to expound on a comment you made and maybe I didn't quite understand it.

In discussing the relationship between incoming and work-off rate, you basically noted that incoming work is nil. Can you please expound on that a little bit?

MR. PRICE: Yeah. What we're seeing right now is the restart station where the review board meets each day and goes through the condition reports that were initiated the previous day, there are not too many of those right now that are being classified as required for restart.

It's really the context of the condition reports