pumps. We have purchased new pumps and motors. Both the pumps and the motors need modifications to them, they're not, they're a little bit higher horsepower and higher pressure than our current pumps, so we'll require some modifications to them.

In order to, in the process of going through this, Jack, as we've talked to you, we are supporting, we are preparing a license amendment with analytical support from Framatone for our existing high pressure injection pumps to be used during our Normal Operating Pressure Test.

The reason that the safety analysis shows that that's acceptable is during that sequence of events, the heat, the plant is pressurized, but it's not heated with any nuclear heat. So, even though it's at normal pressure, without nuclear heat and without essentially any decay heat in the system, the system will be pressurized much faster than it would with a lot of decay heat coming down from a hundred percent power.

And what that means, is the high pressure injection system would not have to go into operation off the recirculation mode. It initially comes on, takes suction off the borated water storage tank, a very high purity water.

So, we're preparing an analysis that would demonstrate that we would not need to go into recirculation for the high pressure injection pumps. That will require a license amendment request to the NRC, which I'll term as a one-time deviation from the current technical specification for the high pressure injection pump.

We expect that analysis out of Framatone this week yet; in fact, tomorrow to do that. And we're working on, supporting that, getting the information for that license amendment request.

We also are continuing to look at the potential to test our existing pumps, and to do a modification. There is a modification that ~~NPR~~ MPR is looking at for us, that the suction to this hydrostatic bearing, is taken off of a fourth stage of a pump, so it's actual water that's going through the pumps, some of it is siphoned off and fed through the hydrostatic bearing.

There is a potential modification that could put a very fine mesh screen right at the suction where that ports off to the hydrostatic bearing. We would mock that up, demonstrate the ability of that to perform, and then we would do some testing of the rest of the internals of the pumps.

Right now I would say that that is a much less likely scenario than replacing these pumps, but we are continuing to look at that.

MR. HOPKINS: If you were to

replace the pumps, do you think there would be any license amendments needed for the replacement pumps?

MR. SCHRAUDER: We don't believe so right now, Jon. They will meet the existing design requirements for the plant when they're modified.

MR. HOPKINS: Okay.

MR. MYERS: Bob, I have a question. This is different. But if you go look at our pumps, the issue is not the ECCS issue, it's the issue for Boron precipitation, and hydroinjection; is that correct?

MR. SCHRAUDER: Some of both. There are some accident scenarios that would require the HPI system to go on recirculation, but there is a long term requirement for the process that we have for, what's called Boron precipitation control. It takes the service line or the mission line for the HPI quite a bit longer than just depressurizing the plant.

MR. MYERS: You go look at our high safety injection pump doesn't take direct suction off the sump. It's a piggyback mode, what I'm trying to say.

MR. SCHRAUDER: Okay, the next issue I would like to discuss, or give you an update on, is the electrical distribution system.

We had a number of Condition Reports, many of them coming out of the Safety Function Validation Project and the Latent Issue Reviews and the System Health Readiness Reviews, which challenge assumptions and completeness of the analysis for the electrical distribution system.

Much of the resolution or evaluation of those Condition Reports hinge on basically a new electrical distribution calculation. So, we're revising the analysis on a very sophisticated computer software. It's very large and comprehensive calculation. It's very similar to the flow of water through a pipe system, but this is more complicated than that, in that it covers a very high voltage all the way down to the loads throughout the plant, in all the different systems, so integrates the entire electrical distribution system.

We've been working on that analysis for a couple of months now. It is still a couple of weeks away before we will be able to look at the operability of the electrical distribution system, and all of its potential down stream and whether there are any voltage problems in the, down in the 480 and lower distribution system.

MR. GROBE: Have you gotten any preliminary feedback from early calculation runs as to whether or not there is going to be any need for modifications?

MR. SCHRAUDER: No, we don't have

any preliminary runs?

MR. GROBE: You're still building the model?

MR. SCHRAUDER: But it's very near completion. Once the model is done, frankly, it goes very quickly to run the model and be able to see.

But there is some potential that some of the voltage is down at the, at the end of the distribution system, we could potentially have to do some modifications in that area.

MR. HOPKINS: Let me ask you here, Bob. The new computer model, is that an NRC approved computer model?

MR. SCHRAUDER: Yes, it is, Jon, it's ETAP.

MR. HOPKINS: So, it's been approved at other facilities?

MR. SCHRAUDER: Yes, it has.

Okay, another issue on the electrical side, if you will, relates to the emergency diesel generator. We have some issues on the diesel generator.

First of all, our load table was found not to be current, kept up-to-date with all of the loads that are loaded onto the diesel. And, we have a starting voltage and frequency response of the diesel itself, where the test results and data that we accumulated identify that the voltage and frequency responses were not as stated in our USAR.

So, we are revising, we have revised the diesel load calculation. We have completed that for the current load and we will need to do some additional work on that calculation, because we're doing some changes in the system during this outage.

Things like these HPI pump motors, will be, they're higher horsepower motors than what our current HPI pumps have. We are adding some room coolers to the emergency diesel generator rooms themselves. That will add load to those diesels. And we have some revised Appendix R loading.

So, we completed what was the current loading table, but we need to add some more information to it as we complete some of the other things that we're doing during this outage.

We are preparing a transient analysis for the voltage and frequency response. We do have the initial confirmation of that, if you will, and have identified that the diesels do not meet the current design specs as specified in the USAR and Safety Guide Number 9.

Those specifically being, voltage during the initial load sequencing should not drop below 75 percent of the nominal load. And the frequency should not drop below 95 percent. And we found that we do go below those for some very short period of time during the initial load step on the diesels.

So, the next step in that is to evaluate what that impact is to the downstream components. And it recovers very quickly in a matter of about, between one and a half and two seconds, that voltage and frequency comes back up to the expected value, so we have to evaluate now downstream as to whether there is any effect on the equipment that's needed to be supplied by that diesel generator. And, we're in the process of completing those evaluations.

We do believe though based on our preliminary results that the diesel does have sufficient capacity and capability to start and load and carry its design basis load. So, some of the preliminarily results there do look favorable for the diesel generators.

Again, the diesel generators are though somewhat limited with this new motor that we would put in for the high pressure injection pumps. That's one of the reasons why we have to do some modification work. Our existing motors are about 690 horsepower. The ones that we have purchased are a thousand horsepower right now. We'll need to bring those down into about the 800 horsepower range, in order we don't exceed the capability of the diesels to supply those.

Jim actually already talked about the next issue, which was the air operated valves. Covered virtually everything that's on that slide, so I won't go into that again.

MS. LIPA: I have a question on the air-operated valves. Can you determine how this occurred, how you found that these valves were not properly adjusted and have you shared what you found with the industry?

MR. SCHRAUDER: First of all I would say that I don't think the air-operated valves, I'm not sure if we put an OE out on it yet or not, but it's certainly not a new issue. It's very similar to the motor-operated valve programs that utilities went through, created a motor-operated valve program, and we really are getting into the air-operated valves now.

We have written Condition Reports on the air-operated valves and evaluation of why and how those setups were done. Some of them have been done with the Condition Reports.

MS. LIPA: Okay, thank you, Bob.

MR. GROBE: Okay.

MR. SCHRAUDER: Those were the only issues I was going to cover today.

MR. GROBE: Other questions?

I have just one. I believe that the significant portion, if not all of this design work, has been done by the contracted engineering organizations. In light of recent inspection findings, are you planning on augmenting or modifying the method by which you review and confirm the adequacy of the outside engineering work?

MR. POWERS: I would like to cover that one, Jack.

We are looking at the control of the, the reviews of the technical org. as supplied to us by our outside technical contractors, and there is a couple of steps that we'll be taking. One is looking specifically on how the flow of that review occurs, what our process is, and the requirements of that process.

We're also going to the, our Engineering Assessment Board, to look specifically at a couple of design packages that we think merit a thorough review, extended condition perspective on those. Those are the, the decay heat valve tank modification for the liner there, and also the containment air coolers. Both of these modifications occurred over a long period of time. Different personnel working on them.

And we believe what we know now, and we're still, we're still probing into details on, on some of the issues that have been found. We think those are modifications that merit a full review, detailed review. So, those are the actions we're planning to take.

MR. GROBE: The work that's done by an outside engineering organization, that's done under a quality assurance program; is that correct?

MR. POWERS: That's right.

MR. GROBE: Are you also digging a little deeper into that to find out why their own internal checks and balances didn't find these?

MR. POWERS: Absolutely. And the contract organization, and this is the organization that prepared our, our emergency sump, some calculations there; were questioned on the detail and calculations. They have their own corrective action report internal to their Appendix B Program, corrective action to investigate exactly what occurred to allow a calculation to come out with some discrepancies in it. So, we'll be monitoring their performance, as well as our own corrective action programs.

MR. PEARCE: We haven't reacted to that yet in Quality Assurance, but we will, Jack, and we'll go look, and look at just what you're asking.

MR. GROBE: Okay. Good. Appreciate that.

I appreciate your patience on these first two sections of your presentation. These are both very important sections, and fairly complex, and I know we had a lot of questions. I guess I had a lot of questions. I appreciate your patience.

We've been going for an hour and a half. I know, Lew, that you have a flight a little later today, but I think there is a lot of material later that's going to go rather rapidly. I would like to take a five minute break, if we could.

MR. MYERS: We were just getting warmed up.

MR. GROBE: Yeah, it's getting warm in here. Five minutes means be back at 25 til.

(Off the record.)

MR. GROBE: Okay, Randy.

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

I wanted to spend a little time today to bring us up to date with the activities that are going on inside of the containment outside of the Integrated Leak Rate Test.

I wanted to at least take a step back and say, what is Containment Health? What were some of the things that we put as part of our plan for activities in containment?

So, I listed the project scope, including the emergency sump, containment coatings, decay heat valve tank, containment air coolers, fuel integrity, our equipment -- environmentally qualified equipment, refueling transfer canal, containment vessel; and, as well, what really generated the whole action plan, was the boric acid extent condition, including the inspections, evaluations and corrective actions.

Next slide, please.

So, I'm going to go through each of these individually and try to bring us current with where we are in the projects.

The Emergency Sump. Of course, the purpose is to ensure long term cooling. That's what collects the water after design basis accident and provides suction to the high pressure injection pumps, as we had talked about earlier. And the status is, the engineering design work has been completed. We've actually completed the field installation. There is a couple of minor things.

I wanted to make sure I'm clear about what is really installation. There is a support echo that had a couple, another corrective action, but for, the majority of the field work is completed. And we did increase the strainer surface area from the original 50 square feet to what is really industry leading 1200 square feet. And we did complete the inspection. The Nuclear Regulatory Commission came in last week and looked at the design package, as well had an opportunity to walk down the actual sump.

Next slide, please.

MS. LIPA: I did have a question for you, Randy.

MR. FAST: Yes.

MS. LIPA: I know you were doing a transport analysis for the past condition of the sump to support the LER. Are you also doing a transport analysis of going forward on the new design?

MR. POWERS: There is a transport analysis for the new design, supports the new design as part of the modification package. The transport supports the LER in the past operability situation. It's not been started yet. We have a scope discussion ongoing with the contractor that performs that, and we're at the point now where we can begin that process.

MR. GROBE: Appreciate you very early in the process, but do you have some kind of a window that you expect to get that done?

MR. POWERS: I would say it's

in the range of four to six weeks, Jack.

MR. FAST: Just point out a couple of items here. This area right here is part of an access hatch. And, as part of routine inspections, we gain access to the, this is the upper portion of the sump that would allow, it's a bolted lid that can be removed to allow access into the upper sump area.

As well, this is what I'll call porous filtration on the top of the upper portion of the containment sump, and then inside, what you really can't see, but we've shown previously to the top hatch, the cylindrical assemblies that provide filtration.

Next slide, please.

This is what we haven't shown a lot of pictures of, but, and I want to try to provide a vantage point. This is a stairwell right here. So, you see the treads of the stairs going up. This lower portion is under, actually at the elevation below the reactor vessel. There is a series of eight tubes below and some external surface that provides some straining. And these tubes provide transport which are supported by these supports right here. And they incline up and then transition up into the upper portion of the sump.

So, what's unique about this design is, about a third of it is the upper portion and two thirds of it is the lower portion of the sump.

Next slide, please.

Now, this is another, I think, really an excellent design feature associated with our emergency sump. This is a debris screen gate. On either side at the 565 foot elevation of containment, there is these large steel doors, and they provide lockable access control to those areas, but as well they provide coarse screenage or filtration of debris that would be generated under design basis accidents.

So, these are massive doors. And they really are works of art. Excellent work by our craftsman in putting this together. And these two -- this is door number 1. There is another one on the other side, door number 3. Then there is another door, 2, and 2 Alpha, which are on either side of the transfer canal.

Jack, you're grinning there.

MR. GROBE: I was going to say, only an engineer would ~~do~~ view that as a work of art.

MR. FAST: I'm telling you, you could put this in a museum. You would say, what is it? You would say, it's art.

MR. HOPKINS: Is that solid at the bottom there?

MR. FAST: No, this is,

I'm talking about, this is a support, so this provides vertical support. This section right here just has a smaller grating associated with it. This is 2x -- 1 1/2 inch x 4, like a deck plate, and this is about 4x4.

MR. POWERS: I think, Randy, six inches across the bottom there, right there where you point, it is solid plate.

MR. FAST: Okay. This is a solid plate. This area here.

MR. POWERS: It's the concept, it's graded filtration to hold up small finds of grit at the floor level, stop them there.

MR. GROBE: You said, I apologize for not remembering the elevation, but 565, is that the floor level which is about the top of the sump?

MR. FAST: That is correct. That's the lowest elevation of our containment. Now, we have lower elevations underneath the reactor vessel.

MR. GROBE: Post LOCA water level isn't much higher than that finer mesh, is it?

MR. FAST: It's, this would be 565 elevation, this floor area. And the actual sump or the level in containment would be about two to two and a half feet. So, that's as, all of the borated water storage tank, and the core flood, it's been flowed into the containment building, we would see elevation at about that.

MR. GROBE: Okay, thank you.

MR. THOMAS: As part of the design package, was there an evaluation done to see if these two coarse screens potentially rob flow to the sump?

MR. POWERS: That was considered as part of the design. Depending on where the break would be and which side of the D-rings, on which side of containment; debris would be generated, a lot of debris on that side of containment; and if one of these screen gates were to be full of that debris, the other side would be relatively clean. And there is also the flow path down below the reactor vessel, through those stairwells in the lower part of the sump, that would be -- there is diverse pathways for the water to flow back to the sump.

MR. FAST: Next slide, please.

Okay, Containment Coatings. Purpose to ensure adequate long term cooling. This is not the purpose of coatings, it's the purpose of the project, was to ensure for long term cooling, we removed degraded or unqualified coatings on components in containment.

So, we've done a thorough evaluation of all of the coatings in containment. And, we had a couple of targeted areas; core flood tanks had unqualified coatings, as well containment dome, which was an older type paint that had degraded.

And all of the targeted coatings, targeted coatings, we still have some unqualified coatings, but they're bounded by our transport analysis, they have been removed using rotopine and needle guns, and we are repainting with qualified coatings. We are just a little more than about a week away from getting out of the paint business here. I'll show some examples of some of the paint.

Next slide, please.

There is a core flood tank. So that, that's one of the tanks that we've, that is, well, it's one of two tanks that have water pressurized to 600 pounds, that go into the Reactor Coolant System on a loss of coolant accident.

All the paint had been removed, and as well, this is where the actual water, it's pressurized from above. This is the volume of fluid that's borated, and it comes through the core flood and into the core flood nozzle. So, those coatings have been removed and recoated.

Next picture, please.

Service waterlines. These blue headers right here are part of the service water that are provided to the containment air coolers. We have three containment air coolers. These are isolation valves here.

One of the things I wanted to note, you don’t get the clarity in this picture, but part of our initiative to improve the indemnification of assets or components in containment was to change out old metal tags with new. They’re a polymer type of high density qualified on a design basis, and attached with aircraft cable. And they’re bar coded as well for future options. You can see a little bar code on this one here.

We can use that then to actually verify containment clearances, as we close that, you can tag that and you know you’re on the proper component.

Another interesting point is that all of these lines have been cleaned internally, hydrolased and flushed. So, these lines that had some carbon steel and they had some telltale signs of rust and corrosion have all been cleaned internally. So, paint was removed on the outside, recoated, and cleaned on the inside.

Next, please.

Here is the top of the containment dome, about an acre, a little over 40,000 square feet. You see here the containment spray headers, the upper spray header and lower sprayed header here. And this is the polar crane that extends across the top of the structure.

There is a little fascia right here. This is one that, our painters actually brought this issue forward, said they felt that was an area that had not been targeted for coatings removal. They brought that to our attention. It had degraded. We had a coatings engineer go look at it. We additionally removed that coating.

You can see here, new white fresh paint. This is an area where paint has been completely removed. This picture is about a week and a half old. We're making excellent progress, and we are just about at being done.

What's so unique about this project is, you see what we call a spider rig. These are basically like window washing rigs that hang from the overhead that our paint crews have used to access these areas. That's what's really been difficult about this project is the accessibility at that high elevation, but this is really a project that is coming very close to completion.

MR. MYERS: Randy, you say we'll be done in about a week with coatings in containment?

MR. FAST: That is correct.

MR. MYERS: So, that closes out a large number of corrective actions and CRs.

MR. FAST: Let me go, I have another section on that. This closes out the painting part of the it, but the other part containment health, we talked about the assets that had some indication of boric acid; that's another part of this program. And we are at the conclusion of really remediating all of those assets under the corrective action Condition Reports written, inspections, corrective actions. And by the end of this month, we expect to have all those assets recovered and inspections complete.

And when I get to that slide I have some detail, but that was over 6500 corrective actions, which was a significant amount of work.

MR. THOMAS: Before we leave coatings -- are you done?

MR. FAST: Shoot.

MR. THOMAS: Can you briefly describe the types of unqualified coatings that were left in containment that are bounded by your analysis?

MR. FAST: Yes, Scott. Principally what we have is conduit that was painted as part of the original construction. That conduit has coatings that are not qualified, that would be expected through jet impingement, through design basis accident some of those coatings would be removed. We have an estimated square footage and that's bounded by the transport analysis. So, principally, it's conduit.

Next slide, please.

The next area is the decay heat valve tank. This was to ensure integrity of two very important valves, which operate post-design basis accident, decay heat 11 and 12, ensures that we maintain integrity, because these are below the flooded area that we talked about previously.

So, those valves are not qualified to operate under water. So, we need to be able to keep this vault in a condition where those valves are able to be operated from any time shortly after the design basis accident up to a week after the accident occurs.

And in this case, the engineering design work has been completed, installation is nearly complete. Really, the outstanding actions there are the electrical conduit, our sealed welding, and we have what's called a loss of cooling accident seal that is installed inside of the conduit to ensure that no moisture or water from the external can get down into the electrical components, the valves that are in the decay heat valve tank.

That's about it for the decay heat valve tank. I don't have any pictures of that. It's closed up, welded up. It has an access opening. We'll just go down there for routine inspection activities from this point.

MR. MYERS: It is one of those significant long-term problems that we're really pleased with. I think we have a very robust design on that tank.

MR. FAST: I would say, it

was elective on our behalf, but we wanted to demonstrate the right standards and the right safety consciousness for important equipment that mitigates the event of any design basis accidents.

Next, Containment Air Coolers. What they, the purpose of this particular plan was to replace components that had been damaged or degraded by exposure or long term exposure to boric acid. Additionally, of the three containment air coolers, we had three motors that were part of a Part 21 report, came from the original equipment supplier, and they needed to be remediated.

Fan motors have been replaced. Fans, dampers, duct work, all of the instrumentation have been cleaned, refurbished or replaced. We have a series of different things that we did. The fan inlet plenum has been completely rebuilt. It was galvanized, fairly light weight. It's now a heavy duty stainless steel, will last the life of the plant; and if it requires any cleaning, will be very easy for our staff to go in and clean.

Service water piping to the cooling coils has been redesigned and replaced. I think I've got a picture of that we can look at.

Next slide, please.

Well, excuse me, I'll just finished the discussion here. Physical work is nearly completed. And just going to go back, I believe we talked about this, I wasn't at the last public meeting, but we had numerous Lessons Learned from the installation of Containment Air Cooler Number 1; some of which revolved around the engineering, the maintainability long term, operational concerns about the ability of the equipment to be operated properly, and as well, just a craftsmanship of the installation.

We took all of those Lessons Learned, regenerated the project, and went in and very successfully completed that service water connections to Containment Air Cooler Number 2 and Number 3. And we elected, based on the quality of that design, its ability to be maintained, to go back in and we're currently working on Containment Air Cooler Number 1, so that all three of the containment air cooler service water connections will be identical, equally maintainable.

One last item that we'll have to perform, our plant engineering staff will do an air and service water testing, to ensure as you would with any heat ~~exchange~~ exchanger process that we get the appropriate cooling.

Next slide, please.

MR. MYERS: This is a work of art.

MR. FAST: This is. Thank you very much, Lew.

These are the service water inlet and return headers. And I'll identify right here what you see are some bellows assemblies. That allows for thermal growth. Under accident conditions, the containment is actually pressurized to about 40 pounds, about 263 degrees. We get what's called two phase flow, as service water is coming into these containment air coolers.

This is a very robust design; stainless steel with these thermal bellows. This design will allow maintainability for the new containment air cooler and coils themselves. These are a couple of our craft workers actually doing installation on Containment Air Cooler Number 3.

It's been a, really an interesting project, and a lot of lessons learned from it. We actually simplified the design. We made it a little bit too complex originally, and that actually made it more difficult to install. By using a specialty contractor that really specializes in these unique kinds of engineering issues, came in and gave us some hints on how to simplify that design. It was easier to install in a more timely fashion, and we feel we got much better quality.

I might just mention one of the concerns. These bellows need to be aligned properly, so we ensure that their flexure is guaranteed. That was one of the issues is the misalignment of those bellows.

Next slide, please.

Fuel integrity. One of the long term issues is really to insure fuel reliability. As we talked this morning at the public meeting about some of the health physics issues, those issues are borne out of fuel that either has failed or has leakage. And we wanted to make sure that for the long term health of the system and as well the fuel reliability that we go to every extent practical to include the fuel reliability.

We've removed defective fuel rods. We modified and improved the fuel handing equipment. We improved our training and our procedures for folks. A lot of visual checks during ~~fume~~ fuel movement, core load. We actually replaced some of the spacer grids that were damaged.

And, we feel that we are in pretty good shape with our core load successfully behind us. There are no pending activities pending with the fuel reliability, and I'm looking forward to leak free fuel cycle.

Jon?

MR. HOPKINS: Let me ask you, Randy, was the spacer grid damage or any other defective rods traced back to construction of the fuel rods, the vendor, let's say?

MR. FAST: There is two

principle elements, Jon, to answer your question. One is in the design. I will say that the spacer grids are, they're not as substantial as some other fuel fabricators. They have some pros in that there is a lot of flexure capability, but they're not as robust.

And, I have talked with the fuel vendor, and they're actually going to incorporate a new fuel grid design they got from another company that they partnered with. That will improve spacer grid design and limit the amount of damage that's done.

But there's a second element here, and that's the actual equipment that we use. Actually imposes more opportunity to cause grid strap damage, because of very close tolerances on the mast, as you would withdraw or insert fuel, it rubs on the inner portion, and that provides an opportunity for grid strap damage.

So, we took some compensatory measures to ensure that we minimize that hazard. And long term, we're looking to modify the fuel handling equipment to open up some clearances to mitigate those potential effects.

MR. HOPKINS: Okay, thank you.

MR. FAST: Next slide, please.

Environmental qualified equipment. As part of the inspection activities, all assets that are required to be maintained operability after design-basis accident were walked down and evaluated, and all of that equipment was inspected for signs of boric acid or degradation. All equipment was found to be operable and there was no impact on them, which is really a good thing. That would say the design was robust and appropriate.

Next slide, please.

Refuel Canal Leakage. We have some legacy issues here. This is really a housekeeping issue for us, but one we wanted to look at past leakage from structures and identify any sources of leakage.

We used some new technology, actual sound monitoring equipment, that actually can detect a very low leakage. We did find some examples that are under review and evaluation for corrective action of areas where we did see some low level leakage.

As well, just to ensure, because there is a leakage path, what was the impact on concrete; was there any degradation on concrete; as well is there any degradation of rebar, that steel that's embedded within the concrete. And, we did show some very minor corrosion; however, nothing that certainly affected structural integrity.

And, the corrective actions that we're going to take are under review. It will be done at a future date when the time is appropriate.

I do believe I have a photograph here of a core bore. I'll just point out -- this is containment concrete that's poured. This is a cross-section of a, we actually bore this piece of concrete out, so that we can do analysis of the actual rigidity, the hardness of that concrete. This is where it's actually cut through the rebar.

So, we're able to look at the rebar and see is there any corrosion on the surface, as leakage or water has migrated through the concrete, would come in contact with the rebar. And, there were no issues there.

We also verified that the hardness, the integrity of the concrete met or exceeded requirements for concrete. This is high pressure, high density concrete.

MR. MYERS: What did you do to that hole?

MR. FAST: We grout that. A process, we use high density grout to go back, fill those holes. Those are engineered holes. We don't just go hunting. We know, based on maps, where the concrete is, where the rebar is; and so we actually target those areas, based on those drawings, to get these core bore samples. We know as well, that they don't compromise the structural integrity of the building.

MR. MENDIOLA: Randy, how many bores did you end up cutting?

MR. FAST: A Bunch. I don't have that number, Tony. I can get that number for you later.

MR. MENDIOLA: Okay. And did you find any concrete along any of the leakage paths that needs to be repaired?

MR. FAST: We did not find any examples where concrete did not meet design requirements.

MR. MENDIOLA: Okay, thank you.

MR. FAST: Next slide, please.

The Containment Vessel. That's the actual liner, what I call liner. It's not a liner, it's a freestanding steel vessel, inch and a half steel throughout containment. And we needed to verify the integrity of that containment liner.

We went through a series of nondestructive examinations. All those examinations were completed. The containment is operable. And that was defined as well by the Integrated Containment Leak Test.

We are installing a grout seal to close, there is a small annular gap, both on the inside and outside of the containment vessel. That will seal between the concrete curve on the inside of containment and what's called a sand pocket on the outside of containment.

So, that is outstanding work. We've got some proposals of it coming to us to perform that remediation before restart.

Next slide, please.

Here's what brought us to this issue, which is really the containment inspections. They'll look at all of the assets and components that were affected by boric acid, evaluate those conditions, ensure that we have appropriate corrective actions, and then document as-left condition, which will really give us a good baseline for future inspections.

Next slide, please.

All of the discovery inspections in accordance with our Discovery Action Plan have been completed. All evaluations have been prepared, as we talked earlier, about 6500 corrective actions have been identified. Not all of those are required for restart; however, they were coded as a restart or nonrestart.

We have a number here, as you see either restart corrective actions that were assigned. This number has gone up since the slide. I don't have a current number, but all of these will be completed by the end of the month. And the remaining work is primarily just cleaning things, like boric acid on a valve stem or on one of the assets within containment. We document the as-left condition. It's documented on the Condition Report.

And the last item, actually I got a status this morning on steam cleaning. We're still struggling a bit, but we wanted to actually go inside and steam clean the D-rings. That's partly a housekeeping issue to raise the standards, also decontaminate the areas.

As of this morning, we only had about 31 inspections for assets inside the D-rings remaining. I wanted to get those completed. We'll do the D-ring cleaning as separate issue, but I wanted to complete the actual inspections on the assets in containment.

Next slide, please.

Reactor Pressure Vessel Head. Reactor is completely resembled since the last time we met. Missle shields are installed. We're in our final configuration. Head vent is in. All seismic restraints are in. Cabling is installed. Control rod testing will be done during full pressure test. So, the reactor vessel is fully intact and ready for full pressure testing.

Next slide, please.

MR. HOPKINS: Wait a second. Let me understand. So, you will actually be withdrawing the control rods during the full pressure test, one at a time?

MR. MYERS: No.
MR. HOPKINS: No. So, when you said control rod testing, what testing is that?
MR. FAST: I think it may be, before we'll start the reactor up, we'll do rod testing.
MR. HOPKINS: Okay.
MR. FAST: That is a normal surveillance activity. I think the words are deceiving here. It's not actually during the demonstration test of full pressure operation.
MR. HOPKINS: Thank you.
MR. FAST: Thank you, Jon.
Next slide.
This is the FLUS. This is the containment, in this case, under vessel leakage monitoring system. This is the installation of tubing which actually goes up and under the vessel. It's on the inside of the insulation.
Installation is complete. We are hooking up -- pardon me?
We are installing the plant computer that will allow us to do remote monitoring. And then as part of the pressure test, the demonstration test, we'll have an opportunity to do sensitivity testing to actually calibrate the system and set it up for power operation.
That's really everything associated with the

Containment. I think we're going to get out of Containment Health business in the near term. We'll bring you up-to-date with any additional activities that we have, but at the end of the month, Containment Health is for all intents and purposes going to be complete.

MR. MYERS: You know, that test you saw might be the test where they just move the rod up an inch or so to make sure it's ~~flash~~ flush. That might be.

MR. FAST: Verification of rod length. And I know, Jon, you're probably asking about the rod drop test.

MR. HOPKINS: Yeah. I would like, I would like you to verify that, because if you make any submittal about the HPI pumps for that NOP full pressure test, I would like to know what you're going to be doing with control rods at the same time.

MR. FAST: Understand.

MR. MYERS: You may have concluded that. You're right.

MR. FAST: We'll take that action. Thank you, Jon.

MR. MENDIOLA: If I could ask a question on a previous slide. I hate to take you all the way back to slide 19, your first work of art there.

I can't remember all your debris analysis that you had, and you talked about this to us months ago, but did you have any screen gates previous to this time?

MR. FAST: We did not.

MR. MENDIOLA: Okay. These gates are at the 565 level?

MR. FAST: That's correct.

MR. MENDIOLA: And LOCA condition, the water will get into the sump at 565 level by what method; down the stairwells?

MR. FAST: There are opening in the D-rings that would allow flow into that area.

MR. POWERS: LOCA approach from both sides, Tony, around the walkway on the 565, you're familiar with the approach walkways to the sump. It can, water can flow 360 degrees around the containment. There is one of these gateways on both sides. Either way. Plus it can go down the stairwell to the lower, below the reactor vessel area where that lower large portion of the sump is.

MR. MENDIOLA: So, there is stairwells, if you want to call that, on both hemispheres on both sides of the gates?

MR. POWERS: Yes, right.

MR. MENDIOLA: So the gates, the LOCA debris loading is on one side of both gates, there is still water going to be able to get down into the sumps?

MR. POWERS: Right.

MR. MENDIOLA: To the other stairwells?

MR. POWERS: Right. That was the design consideration.

MR. MENDIOLA: Okay. Thank you.

MR. MYERS: Okay, Jim.

MR. POWERS: I would like to talk about a success we had at the site with the Integrated Leak Rate Test in Containment. If you look at the front of your slide package. First slide shows our cooling tower as we build it with the recovery and improvement of our plant. Integrated Leak Rate Test was one of the major milestones that we needed to complete to continue our forward progress. And we performed it well at the site and we demonstrated a very leak tight containment.

The purpose of the test is to demonstrate containment integrity. Following the construction opening that we prepared in containment to move our new reactor vessel head in, we closed up the opening and demonstrated structural integrity and leak rate integrity through this testing process.

The process of testing containment for pressure is done periodically, normally on a ten year interval, unless there is a reason, a major change, such as our construction, to do it more frequently.

We pressurize our containment to nearly 40 pounds per square inch gauge with compressors as we do this, and then we hold them for stabilization of conditions within the containment and atmospheric conditions. The containment is very large, about 27.8 million cubic feet. So, to pressurize it and then hold it for conditions such as thermal stratification to stabilize is important.

Then we prepare, or we perform leakage test measurements, and our instrumentation that we use for this is very precise. We have 30 temperature elements that we locate throughout the containment. We have ten relative humidity gauges. And we have two precision scientific instruments that measure down to the range of 1/10,000 of a pound per square inch change in pressure. So, that's the reason why we wait for stabilization to get all the parameters stabilized and ready for the test.

We perform a leakage test by looking for any changes in the parameters that may indicate there is leakage. And that test goes on for a number of hours. And, I'll show a curve of the pressure test that gives you a timeline of it.

Then, we validate our test instrumentation by introducing a known small leak out of the containment with an accurate measurement on that leak, and we watch our instrumentation to assure that it can accurately detect that leak and that validates that the instrumentation is working well.

Then, subsequent to collecting our data, we depressurize and analyze the test data.

Next slide shows the equipment that we need to bring in to the site.

MR. GROBE: Jim, you might want to clarify that you don't actually put a hole in containment.

MR. POWERS: Oh, we open up a little valve, Jack, thank you. That's right.

MR. MYERS: Saw that core drill a while ago.

MR. GROBE: That's right, that was not a known small leak. (laughter)

MR. POWERS: In order to pressurize this large containment building, we bring in twelve temporary compressors onto the site. And here we show a view of them from one of the upper floors of our office building right adjacent to the containment at the site.

So, looking down, you can see the arrangement of these compressors. They're all taller than we are.

They're pretty big pieces of machinery. And we connect them up with hoses into a manifold. That's that little piece of pipe, white piece of pipe proceeds on into the containment.

At the turn in the white pipe is a silencer for when we depressurize the containment; the air escaping is pretty noisy and it goes on for a period of time while we depressurize all that air.

On the next slide, we show the manifold hooking up all the hoses from the multiple compressors together. Use this to pressurize. As you can tell, this is advanced planning that needs to take place to get this test prepared to go, and equipment to be staged.

And there is a lot of preparation within the plant itself within the containment. For example, the Reactor Coolant System needs to be closed up. All the work needs to be completed on things like reactor coolant pump seals that were being refurbished, valves that are being replaced and maintenance being done on them. Steam generators need to be closed up.

So, a lot of work needs to be prepared. Individual valves need to be tested in preparation. And then every, every one backs out of containment, and any loose equipment is removed, because of the pressurization and depressurization on those.

And, so the organization needs to communicate and work well together to reach this milestone and effectively execute it.

On the next slide, what we show is the pressurization sequence that occurs, as we go through the stages of the Integrated Leak Rate Test. So, to pressurize the containment with all the compressors takes nine hours. Then a stabilization period is a bit over ten hours. The hold test where we take our instrumentation readings is a bit over six hours. Verification that we talked about, with the flow that's introduced through a valve, approximately four hours. And depressurization takes another over nine hours to let that air out of the containment structure.

This was completed on the 9th. And it was completed, I need to add as well, six hours in overall time frame better than the last time this test was done in 2000. This test was done during a refueling outage. So, the organization worked well together to efficiently do this test, and to do it well.

The next slide, some of the Safety Culture attributes that we think were demonstrated through the ILRT activities; preplanning, cross-functional teamwork. You know, as I've described, the engineers need to work to prepare, the maintenance craft workers need to get their work done as a priority and understand priorities to achieve this objective.

Operations needs to position hundreds of components of valves into the appropriate position to prepare for the test and its successful execution.

Contingency planning needs to be in place for all these steps, in case equipment is not available or doesn't work appropriately. Previous lessons learned from the Davis-Besse site, as well as the industry factored in. We brought in industry experts to peer check us and critique us in our plans prior to the test to be sure we're successful, and that paid off.

Resource allocation needs to be there for all the various work groups, and solid project management dragnets that lay out the logic of how we're going to go through the test and complete it successfully need to be done.

These are a couple of the engineers. The front man is Mike Byer. He's in the plant engineering section of our senior engineers. He is the Test Director. And he's assisted by George VanWert, who is a specialist contractor in this type of test. They were at their computer instrumentation monitoring the parameters during the test here.

As we show here, I mentioned we demonstrated through our data review that the containment continues to be leak tight, and we had a successful test evolution.

Any question on that?

MR. GROBE: Jim, no question, just a comment. We had two inspectors that spent, well, over about the last eight weeks reviewing test procedures and preparations for this test, and actually witnessed the test; and provided very positive feedback regarding the performance of the test and the quality of the results.

MR. POWERS: Thank you.

Couple of slides here I wanted to touch on quickly. We've talked about many of these significant plant issues that are being resolved amongst our various portions of the presentation in the past meetings, but we are working to keep them in front of us at the plant and in front of the staff, so they can see the effective resolution of longstanding issues and in some cases latent issues at the plant, and what it takes and demonstrate effective resolution of issues. We think that contributes also to the Safety Culture at the plant.

As you can see, for example, I will select a couple of them. Our valve team has worked over 1,500 work items that completed work on 594 valves, 72 remain. That includes things like repacking valves where any leakage was noted. Replacing yokes on valves to get improved material applications. So, a lot of work on material condition of the plant has been done.

On the next slide, we have noted on the first bullet there, the reactor vessel internal cleaning. Randy mentioned the fuel inspections and going toward competence on our fuel integrity. We also completely disassembled the internals for the reactor vessel at the site prior to putting the fuel in. And backended out and removed all foreign material with a very thorough cleaning. So, that's a real plus of the site going forward for fuel reliability.

We also repaired our reactor coolant system resistance temperature detection ~~faucets~~ bosses that had been a source of leakage in the past, and those were replaced. Completed work on reactor coolant pumps. We're going through our emergency diesel generators and improving material condition there.

We've cleaned the inside of our service water system and made sure it was restored to full capability. We mentioned our feedwater heater 1-6 retubing project. That's also positioning the plant material condition for the future, lifetime of the plant.

Our cranes, we worked on those to upgrade our controls; and also make them removable from containment, so during the operating cycle, that instrumentation can be taken out of containment, so it's not exposed to operating conditions, and it’s brought back in during refueling outages. So, that would keep it in pristine shape.

Finally, a thorough containment cleaning. Going through with a team led by Lynn Harder in our Containment Health Group, completely cleaning the residual Boron that may be there. That’s restoring us to a standard that will set our going forward, the staff for future operations.

With that, speaking of Safety Culture, I would like to turn it over to Lew Myers.

MR. MYERS: Thank you.

Today, I would like to talk about three areas, desired outcomes, if you would. Prior to our Mode 5, we completed our second Safety Culture Assessment in-house. I would like to assess you on that.

As you recall, we hired an independent consultant to perform a safety assessment -- Safety Culture Assessment at our plant, and provide you a preview of some of the information that we learned from that assessment.

And finally, then Bill Pearce will brief you on the results of our most recent Safety Conscious Work Environment Survey. You remember, we gave you some information I think last year or something, on the first review. So, we’ll give you an update there.

If you go look at our Safety Culture process, we have a business, business practice that we put in place, our assessment for Safety Culture is a very structured process, using that business practice. And I'll give you some, an example of that, that we developed, and to monitor specific attributes and characteristics for each of the these Safety Culture criteria that we identified.

We had a two-day meeting. Each manager came in and presented their assessment of their particular area. The criteria for the groups was graded as a group. So, all the men. It wasn't just a guy comes in and says, I think my areas are green. It was a very challenging experience.

I think you'll find some of your people monitored this, I believe. We also brought in some of our program owners from engineering our engineering programs; some of our system engineers. Then we went out and randomly picked a couple of our mechanics to also give us some feedback.

The management team consensus as a group I think was attained before we finished. Then, once we finished our Safety Culture Evaluation for Mode 5, we go back and from an objective standpoint and look at this criteria, because this is a learning process. We go back and review and redefine the criterias we need to, or add additional criteria. I'll show some examples of that.

Next slide.

If you go look on this Mode 5 Safety Culture, we assessed ourselves overall as yellow in the Policy Level

Commitment Area. I'll provide you some input on that. Yellow in the manage -- Plant Management Commitment Area. I'll provide you some input on that. And finally, the Individual Commitment Area, we also assessed ourselves yellow. So, it's yellow, yellow, yellow.

As you see, we added some criteria, the two lower corners.

Do you have your pointer?

So, in the Policy or Corporate Level Area, Self-Assessment was added and Independent Oversight on the specific criteria for those.

And then in the Management Area, we have Cross-Functional Work Management and Communications and Environment of Engagement and Commitment.

As you see, these four new criteria, we graded one of those yellow. And we really focused on those areas prior to loading the fuel.

The overall assessment, we would say, if we had to look at this assessment as different than we had before, because we had some white areas, and they have shown before, but we would say if we had to assess ourselves honestly, we see an improvement, but what we've seen is criteria is very specific now, and more difficult to grade. And I'll show you that as we go through.

So, let's move on to the next slide.

MR. THOMAS: Lew, could you briefly talk about what yellow means for the broad category?

MR. MYERS: Yes, I'm glad you asked that. In fact, I just happen to have our business practice. Green is all major areas are acceptable with a few minor indication -- indicator deviations. White is all major areas are acceptable with a few indicators requiring management attention. Yellow, you get into where it requires a more prompt attention. All major areas are acceptable with several indicators requiring prompt management attention. And then red would be, several major areas and these criteria on the side, do not meet acceptable standards and require immediate management attention.

MR. THOMAS: Thank you.

MR. MYERS: This slide here is an example of one of the pages of this procedure, which I think is 55 pages long. We go through and use this criteria to grade our areas. Some of the stuff is subjective. Some of it is very objective.

For example, if you look at this area here, it's in the individual commitment area, and it concerns questioning attitude. If you look over here at the individual area up here, you'll find a questioning, an area under questioning attitude.

If you go back to this original Safety Culture model I gave you, and under the Quality of Prejob Briefings, we have some subjective criteria where we're red, if we see a lot of prejob briefings not going well. If in general, if management observation and QA field observation, so we're also using our quality group observations show that the prejob briefs are generally acceptable, then you would be green.

That's sort of subjective, but we can go back, and since our observations are computerized, look at the number of acceptable ones and make a management decision there.

You go to the next one where it is more objective; very, very objective. Now, where we say, correct CRs that have been generated by our staff. Now what, those that we have, is our staff, when we find problems, identify those problems.

So, if you go look, you say, less than 13 percent of our individuals wrote CRs during the past 30 days. That would be a red issue.

Go over here, and you look and say, more than 17 percent of our individuals wrote CRs in the past month. That would take us to green.

So, that's very measurable. So, you find a combination of questions with some subjectivity in it, and some others that are very objective.

Next slide, please.

In the Policy Level Area, there is five commitments in this area. Two of the commitments are new. Two were evaluated yellow.

If you go look at our management values are clearly reflected in our business plan and are understood in the organization. That is yellow. I will explain why in just a moment.

Resources, the next area is yellow, was resources are available or can be obtained to ensure safe, reliable operations. We also grade that area yellow. Now. Why was that?

Go to the next slide. If you go look, the 2003 business plan was not approved or was distributed at that time. In fact, it was in the last stages of approval waiting for Bob Saunders' signature. That didn't stop us, because the criteria was that objective, we rated ourselves on; that does not meet that criteria.

Additionally, if you go out and survey our employees, you know, we'll tell you that we're still getting some, we think we show good improvement, but getting some mixed results when we go out and ask about what is Safety Culture and what is the difference between that and Safety Conscious Work Environment; stuff like that. So, based on that, we graded that area yellow.

Employees are unaware of the Nuclear Performance Index, when we go survey that. What is the status that index right now? That's one of the criteria we measure.

If you go look also at Maintenance, Radiation Protection and Chemistry areas and in Design Engineering Operations, they were yellow based on availability of resources.

If you go look on our plate right now, especially in this first three areas, there is a lot of CRs and activities. Just throwing resources at the problems sometimes doesn't help. And so, you know, we've been working, our staff has been working like 72 hours a week. We've backed off on that. We made some very good accomplishments, but because of that, we grade ourselves yellow.

Additionally, if you go look at our Operations Area, we have continued training on, but we have interrupted our license class, which we are just now putting back in place for next year's exam. If you go look, because of that, Randy talked to you about our staffing plan awhile ago for Operations, and that's a very important area for us. Because we had knocked off that training class, with the outage for awhile, we graded yellow also.

Lack of appropriate section performance indicators.