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NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

PLANT LICENSE RENEWAL SUBCOMMITTEE

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H.B. ROBINSON STEAM ELECTRIC PLANT, UNIT 2

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TUESDAY,

SEPTEMBER 30, 2003

The Meeting came to order at 12:30 in room T2B1 of White Flint Two, Graham M. Leitch, Chairman, Presiding.

PRESENT:

| | |
|---|---|
| GRAHAM M. LEITCH | ACRS Member |
| MARIO V. BONACA | ACRS Member |
| STEPHEN L. ROSEN | ACRS Member |
| JOHN D. SIEBER | ACRS Member |
| B.P. JAIN | ACRS Staff |
| JOHN BARTON | ACRS Consultant |
| P.T. KUO, | Program Director, License Renewal |

# A G E N D A

P-R-O-C-E-E-D-I-N-G-S

(12:30 p.m.)

CHAIRMAN LEITCH: This is a meeting of the Advisory Committee on Reactor Safeguard, Subcommittee on Plant License Renewal. I'm Graham Leitch, Chairman of the Subcommittee. The Subcommittee Members in attendance are Mario Bonaca, John Sieber, Steve Rosen, I think, will be joining us shortly, but he's not here at the moment, and our consultant, John Barton.

The purpose of this meeting is to review the License Renewal Application from H.B. Robinson, associated draft inspection plan evaluation and review by the NRC staff. The Subcommittee will hear presentations by and hold discussions with representatives of the NRC Staff, Carolina Power and Light, and other interested persons.

The Subcommittee will gather information, analyze relevant issues, formulate proposed positions and actions as appropriate for deliberation by the Full Committee. B.P. Jain is the Designated Federal Official and ACRS Staff Cognizant Staff Engineer. The rules for participation in today's meeting have been announced as part of the notice of this meeting previously published in the Federal Register.

Transcripts of the meeting will be made available.

I'll ask that the speakers first identify themselves and speak with clarity and volume so they may be heard. We have received no written comments or requests for public comment.

I should say that, by way of introduction, in the past we have spent perhaps a full day on recent cases, perhaps quarters of the day with our Subcommittee reviewing these license renewals, trying to improve the efficiency of the process , trying to discuss, to review, so if we're still here at 8:00 tonight, we'll know we have failed.

SPEAKER: You will know --(Laughter.)

CHAIRMAN LEITCH: But we really think that this is possible. We do not want to shortchange anyone on time, but we do think it should be possible to eliminate some of the boilerplate, and some of the more routine matters, and get right to the heart of the issue, and that's how that would happen. So without any further ado, Mr. Kuo.

DR. KUO: Thank you, Dr. Leitch. My name is P.T. Kuo. I'm the Program Director for License Renewal Program. Today the staff will be reporting on its safety evaluation of H.B. Robinson Steam Electric Plant Unit 2. The Project Manager for this safety

review is Sikhindra Mitra. He will be assisted by Dr. Mario Cora. They will lead the presentation today, but they will call upon the staff experts to answer questions, and most of the key reviewers are sitting in the audience. They are ready to answer any questions.

Briefly, the staff issued the staff evaluation, the safety evaluation report with open items on August 25th, 2003. There were only two open items in the safety evaluation report, and since then these two open items have been resolved. As usual, we have also --

SPEAKER: Excuse me. It was my impression that there were more open items. There were a number of --

DR. KUO: There are 29 confirmatory items.

SPEAKER: Some of those confirmatory items have --

DR. KUO: Well, the issues are resolved. That's all I have to say with that. I would like to turn over the floor to the applicant.

MR. STEWART: Good afternoon. I'm Roger Stewart, and I am the Technical Lead on the Robinson Renewal project. This afternoon, I'm going to go over some background, some of the operating experience.

I'm going to discuss a little bit about our scoping methodologies, and how we relate it to GALL, and I'm going to discuss our commitments and commitment tracking.

In terms of background, Robinson's initial license was granted July 31st, 1970. Westinghouse 3 loop plant, 2339 megawatts. It's a sister plant to Turkey Point. Currently, all of our NRC performance indicators are green, and all NRC inspection findings are green.

As shown on the first slide, if you go to the Robinson site, there are two units. The first unit is a Fossil Plant. The second unit is a Nuclear Plant. There are some shared resources. Some of those shared resources were in scope in terms of license renewal. Those include the lake. We have a common lake, we've got a dam, spillway and discharge canal that are shared by the two units. We do have separate intake structures for the two units.

For the emergency diesel generators on Unit 2, we do accredit some additional storage capacity from Unit 1, so we have one tank with some transfer piping in scope, as well. The Fire Water Systems are cross-connected. They are separated by a closed isolation valve, so it's strictly a backup

feature that one plant could back the other one up, but they are crossed. There's a number of --

SPEAKER: [text missing due to failure of NRC audiovisual system.] between the two valves that there is [text missing due to failure of NRC audiovisual system].

MR. STEWART: No, sir. These are underground headers with valves. I believe it's all underground.

SPEAKER: So the valves may be leaking.

MR. STEWART: Possible, but not likely. We do have performance tests on both units, and we test the loops as well as the pump capacities.

We have a number of other systems that are shared between, there are resources shared between the plants that aren't in the scope of license renewal. These are things like the hydrogen supply, sewerage treatment, the telephone and PA systems are common, training buildings, warehouse, waste oil disposal facility. We do have a railway we use to get equipment into both units, and we also have the access road. And that's pretty much what we've got common between them.

The security is pretty much assigned to Unit 2, but the perimeter of the plant also includes

Unit 1.

MR. BARTON: Warehouse is common for both Fossil and Nuclear --

MR. STEWART: Yes, sir.

MR. BARTON: Single and segregated fossil or --

MR. STEWART: There is some segregation. There are some different areas, and there's also -- there tends to be, depending on the area, they might have some spares that they carry specifically to Unit 1, but we do use pretty much a common warehouse.

Now, you stock the stuff by the part number, and you draw it out by a part number. That does not mean that you get the same part for Unit 1 as Unit 2.

SPEAKER: What's the status of the Unit?

MR. STEWART: It's older than Unit 1 - excuse me - Unit 2. It went into service in the early 60s. I'm not sure of the exact date, but it went in, in early 60s, and probably predates it a good 10 years.

CHAIRMAN LEITCH: There's no, well, I assume you have no definite plans for retirement of these fossil plants.

MR. STEWART: That could be, sir, but to

my knowledge, we at Progress Energy have not retired a fossil plant yet, so I mean, we've got some that are considerably older, and we haven't retired those, but that is a possibility. In terms of the --

CHAIRMAN LEITCH: Excuse me, but just - I don't see any mention of the switch yard. One of the things -- this may not be the right time in the presentation, but one of the things we have clear in our mind [text missing due to failure of NRC audiovisual system.]

MR. STEWART: The two units do have separate switch yards. There's a switch yard for Unit 1 and a switch yard for Unit 2.

CHAIRMAN LEITCH: But the switch yard and the switch yard relay building are not in scope.

MR. STEWART: They are in scope for SBR. We brought them in scope.

CHAIRMAN LEITCH: According to the document that I read some of it's in, and some of it's out. We'll talk about that when we get to the restoration --

MR. STEWART: The initial application -- you're correct, sir. On the initial application, none of it came in. But when we addressed SBR, we brought parts of the Unit 2 switch yard in scope.

Operating experience on Robinson, it's operated with very good capacity factors. We've also made good progress in shortening our outages, and in addition, we've had minimal -- we've experienced minimal amount of time off line for other than refueling outages. In fact, between our spring of 2001 and fall 2002 refueling outage we operated breaker-to-breaker with no time off-line, so the plant has been operating really well.

The next thing that I want to talk about is the reactor vessel head penetrations. I'm going to start with the upper penetrations. When we did our Spring 2001 refueling outage, as we shut down, we found some evidence of CRDM CAD seal leakage on the head, and we elected to remove all insulation and perform a bare metal qualified visual inspection of the whole head. No leakage was detected. Now this was in Spring of 2001, and this was before the NRC had issued the bulletin. So we did some further work to try to get a better handle on what we had seen or what we were likely to see, and we had some analysis done that demonstrated that, had there been any CDR or any through-wall defects, we would have been able to see the leakage or the results of the leakage, so we did a bare metal visual inspection, didn't see anything.

The next time we looked was in the next refueling outage, which was in Fall of 2002, and at this particular point we went and we did another bare head visual inspection. In addition, we did some NDE of all the penetrations. And what we did is we did an eddy current exam of the 69 J-groove welds and a penetration OD surface. We did eddy current and UT exam of the 17 open penetration tubes from the penetration ID. We did an eddy current exam of the 45 penetrations tubes with thermal sleeves, and the 7 remaining tubes with part leak drive-shafts from the penetration's ID surface, and we found no evidence of service-related degradation in that inspection.

MR. BARTON: How many degradations have you seen through the methodology?

MR. STEWART: Through this next cycle, which will be April, 2004, 21.7.

MR. ROSEN: What is the temperature of that vessel head.

MR. STEWART: 99.7. It's just under 600 degrees. Now we have ordered a replacement reactor vessel head, and we're currently planning for that replacement to take place in the Fall of 2005. And using the EPRI methodology, we'll have 23.1 degradation years at that point. And I failed to

mention, our head is a CE fabricated head, which seems to show some less susceptibility than the B&W ones. That's all I have on the upper head.

CHAIRMAN LEITCH: Now, is my understanding correct that you are seeking relief from the NRC Order so you will not have to do so many inspections?

MR. STEWART: That's correct, sir. Yes. Based on the examinations that we've done, the analysis that we've done, and the fact that we do plan on replacing them in 2005.

If there had been a crack existing at that time, which we did not see, it would not propagate over the two centers of operation until we replace the head, so it's a bare head visual examination.

SPEAKER: Okay. Thank you.

MR. STEWART: On the lower penetrations, we're in the process of preparing a response to the NRC bulletin now, but we are making plans for this spring. We plan on doing a remote bare metal inspection of the bottom head, and along with that, we're also developing some contingency plans in terms to try to identify potential sources, and what we might do for NDE and repair. That's as far as we've gotten with that, but we are working to put it in the schedule and are developing a response to that.

CHAIRMAN LEITCH: What time -- do you have instrumentation time schedules on the lower head? Is that coming--

MR. SIEBER: What schedules?

MR. STEWART: I don't know the number of the --

MR. ROSEN: Do you have access? What kind of access do you have?

MR. STEWART: If you could help on that one, I'm not that familiar with --

MR. BAUCOM: It is somewhat restricted because our understanding of it is that the lower vessel insulation is one piece, and there's some shrouds and support, so it would have to be engulfed, and we'll have to lower that insulation as one unit sufficiently to give camera access to see what's going on with the penetrations for each instrumentation.

MR. SIEBER: It's like BWR, where you have all that. There's a lot of stuff that you're just forgetting about.

MR. ROSEN : It's not like the trend where they had very good methodologies.

MR. STEWART: Now I'm going to talk a little bit about the scoping and screen methodologies and any exceptions to GALL.

MR. SIEBER: Before we leave your description of the plant, I'd like to ask a couple of questions. You replaced steam generators in 1986.

MR. STEWART: '85.

MR. SIEBER: '85 or thereabouts.

MR. STEWART: Yes, sir.

MR. SIEBER: What model did you put in, and what was different about the replacement steam generators and the original ones?

MR. STEWART: The replacement generators are -- it's 34F, and they have the feed room with the J-tubes. And they have -- the main difference that ours have is the thermally annealed inconel after you vent it. And in addition, we've got stainless steel quadrifoil baffles on the support, two sheet support baffles. And I don't remember the exact numbers, but I'm thinking the total number of tubes that we've plugged is like two dozen, comes to mind so far.

MR. SIEBER: Okay. That answers all the questions that we asked. I do have a question about your containment. One of the open items or confirmatory items was the debris screen on the purge valves. Now, do you operate your plant with the purge valves open during your operation?

MR. STEWART: No, sir. That's not --

MR. SIEBER: It's not allowed, I suppose.

MR. STEWART: I believe it is allowed, but it is not part of the standard operation to do so.

MR. SIEBER: So the debris screen actually serves no purpose during the entire operation. Is that correct? You probably have that isolated --

MR. STEWART: It's isolated and it's --

MR. SIEBER: Mode 3 and above. Right? Mode 3 and above.

MR. STEWART: Yes, sir.

MR. SIEBER: All right.

DR. BONACA: It seems to me --

CHAIRMAN LEITCH: Excuse me. Go ahead.

DR. BONACA: It seems to me we're asking questions about some various experience. Now in reviewing your programs ASME Section 11, containment, and Subsection IWL Program, there are a number of observations made about the containment liner and corrosion. I wonder if you could just summarize for us the status of that. There are statements that say there are problems. The affected areas have been evaluated and meet minimum wall thickness. What does it mean in terms of the progressive degradation of that? Are you monitoring it --

MR. STEWART: What we found, sir, is on

our containment liner, where we found corrosion is right at the bottom of the liner. As you get down and you go down the liner, right at the base plate. The liner is there. You've got the form, the base mat on the floor, and there is a moisture barrier there. And we have gotten some moisture or something behind that. So we had some degradation of the liner, right in that lower couple of inches or so. And we have pulled off all -- we have pulled off panels -- our containment has -- we've got the steel liner. Then we've got an insulation panel. Then you've got a stainless steel sheeting, and it's typically 4 by 8 stainless steel sheeting and insulation panel. We had removed all those panels that were accessible and checked all of the lower portion around there, and had found some degradation, were able to evaluate it and determine that we had ample thickness to continue operation. And what we had planned to do, and what was previewed as an existing commitment as some of the inaccessible areas we're going in this refueling outage, and it's typically a blocked wall. We're going to remove some of the blocked walls, and we're going to get to those last panels and go around and check those to make sure that they're in good shape. That's what the commitment relates to.

DR. BONACA: Yeah. The other question I had was how did the boric acid leakage get there? I mean, on the statement it says you had -- I just was trying to figure out --

MR. STEWART: We had a rapid coolant pump seal failure in the early 70s.

DR. BONACA: Okay.

CHAIRMAN LEITCH: I had a question in that same vein regarding these insulated panels. This is on the inside of the -- this is up against the containment liner?

MR. STEWART: Yes, sir. If you can visualize, you have the concrete structures and you've got the steel liner on the inside. Then we've got an insulated panel and then we've got a stainless steel sheeting on the outside of it, so if you were inside the containment looking out, what you would see would be the stainless steel insulating - excuse me - the stainless steel sheets.

MR. ROSEN: Sheeting on the insulation.

MR. STEWART: Yes, sir, covering the insulation.

CHAIRMAN LEITCH: That's an unusual design, is it not?

MR. STEWART: I would suspect so. Our

plant design basis is that insulation is there so that in a design basis accident limits the amount, limits the heat-up rate on the concrete.

CHAIRMAN LEITCH: Now have you -- I guess you're aware of the recent concern about sump debris.

MR. STEWART: Yes, sir.

CHAIRMAN LEITCH: And I'm picturing in your design with this insulation around the containment whether you have a larger capacity to generate debris than most? Am I not getting the picture correct?

MR. STEWART: For the most part, if you will envision the primary systems are pretty much inside a primary emissions sheet, and so if you're talking LOCA-type generated debris, there is not a -- the only thing you'd have to look at potentially are some of the high energy lines that are coming into the containment from safety injection, so there's not a lot of target area that can get to it because you've got a large missile shield around the whole primary components that would prevent anything from potentially impacting and knocking this insulation off.

MR. BARTON: Is there a containment spray system?

MR. STEWART: Yes, sir.

MR. SIEBER: You've got containment feed water on it too, which is pretty big, and they run on the outside of the --

CHAIRMAN LEITCH: You do have steam lines. Like I said, it's LOCA generally.

MR. SIEBER: Steam lines.

CHAIRMAN LEITCH: So are you - Again, I'm a little confused on the status. Is there a new bulletin regarding sump blockage in BWR.

MR. STEWART: Yes, sir.

CHAIRMAN LEITCH: Is that --

MR. STEWART: Yes, there is. Exactly. And we have answered the bulletin. We answered it in August. And when we answered the bulletin, we took Option 2 in it. And with Option 2, what we're doing right now is we are doing some enhancements to operating procedures, and those will be implemented by the middle of November. And additionally, we're also enhancing what we do in terms of containment cleanup and inspections, and we'll have that in place before we go into the next refueling outage so we can train all the crews going in. And in addition, we'll be going back and doing some design basis review on the sump and stuff. We're just beginning that. But we've

answered the first phase of the bulletin.

CHAIRMAN LEITCH: So you're dealing with it as an operating procedure, as housekeeping improvements.

MR. STEWART: Yes.

CHAIRMAN LEITCH: And going back and looking at the design, but that's pending.

MR. STEWART: Yes, sir. That's correct.

CHAIRMAN LEITCH: I would think that if that insulation that we're referring to, although I understand what you're saying, is that they not be susceptible, I would think you would have to look carefully at that to be sure that that didn't significantly increase the problem you have as compared with some other things.

MR. STEWART: Yes, sir.

DR. BONACA: I have a question still on containment. Again, looking at one of your problems, there is a description of an experience where in containment you have some significant indication spalling grout problems, degradation of exterior surface of containment, some concrete, so some experience with that. Do have aggressive ground water at Robinson?

MR. STEWART: Our ground water pH is less

than 5.5, so under that threshold we'd say that yes, it's to be considered aggressive.

DR. BONACA: And you have chlorides and sulfates too, so have you had indication on exposed concrete under -- I guess what I'm leading to is, because you have indication of concrete spallation and problems even with integrity of containment, do you have some indications like these also for intact structure, for example, and other non-accessible locations that would give even a higher concern?

MR. STEWART: We have -- about four years or so ago, we replaced a portion of the service water header and brought it from below ground to above ground, and we excavated right up next to the auxiliary building, and we did that, and went back to that concrete and went down quite a bit, and saw no evidence of degradation there. We also -- the lake water and the ground water are fairly comparable. If we look at a lot of the water intake structures and discharge structures, we have not seen any particular evidence of degradation on those. We do have some programs in place.

We've looked somewhat at the Unit 1 side, but not extensively, and we haven't seen a lot with Unit 1, but the stuff that we've looked at, we haven't

seen problems with it.

DR. BONACA: We will hear from the staff anyway on the staff's evaluation, how you addressed --

MR. STEWART: Yes. For our scoping and screening, all of the technical work that we did to prepare the application was performed in accordance with our Progress Energy Quality Assurance Program, i.e., we did the work under Appendix B. We basically followed the guidance of NEI 95-10 and prepared an application in the SRP format. I believe Fort Calhoun was the first one, we're the second one, so we were following that format.

Initially, when we submitted the application we had not addressed the Staff interim guidance, so we did issue a supplement, and we issued that prior to getting the RAIs to address some of the interim staff guidance on such things as the A-2, the SBO, fire protection, the external aging on concrete, but we addressed those via supplement.

There's a couple of unique aspects to Robinson, and this goes back to containment. We don't know of another domestic plant - I'm not saying there isn't one, but we're not aware of another one, but we have grouted tendons, so that's one big difference. And this will definitely be the -- this

is the first one that the staff's has had a chance to review that has grouted tendons.

Another one that we've got, and this is not as unique. I don't know if you've had it on your other applications, we have a dedicated shutdown diesel that we rely on for both Appendix R, as well as SBO.

MR. SIEBER: You have a separate Appendix R aux feed pump, or feed pump?

MR. STEWART: We rely on -- we have two motor-driven pumps and one steam-driven pump, and so we tend to rely on the steam-driven pump in both scenarios.

MR. SIEBER: Yeah, one of the problems is that a plant of that age, and it depends on who the AE was, but a plant of that age, all three pumps were usually the same fire rating. If Westinghouse put that together, they may have been --

MR. STEWART: The two motor-driven pumps are basically in the same cubicle. The steam-driven pump -- and that's in an area that's right off the turbine building, and it's separated by --

MR. SIEBER: It's in the aux building. Right?

MR. STEWART: It's in the aux building,

but you get to it by going through the turbine building. It's clean. But the steam-driven pump, our turbine building is open. Now physically 75 feet, I'd guess.

MR. SIEBER: It's in the turbine building?

MR. STEWART: Yes, sir. And it's open. It's a different fire zone.

MR. SIEBER: All right. You probably know it, but a lot of plants that had the extra diesel would use it to power an Appendix R aux feed pump have separate ones. A lot of those plants have had four instead of three, so I thought that's what you were doing.

MR. STEWART: Our diesel, we use it power a component cooling water pump, a charging pump, and a service water pump. The main thing that we're trying to do is RCP seal cooling and seal injection is what we're allowing for.

MR. SIEBER: So it's not a real big one, right?

MR. STEWART: I'm not sure of the size. Do you know?

MR. SIEBER: 2400?

MR. STEWART: It's a pretty good sized

unit. I think it's close to the other ones. Our emergency diesels are 480 as exempt system.

When we're looking at our aging management programs, and these will be discussed later by the Staff, but we took no major exceptions to GALL. We did take some exceptions, but no major ones. Yes, sir.

MR. ROSEN: Before you get off this line, you have a bullet that says supplement to address ISGs.

MR. STEWART: Yes, sir.

MR. ROSEN: Is that going to be discussed later in detail, that supplement? Is anybody on your program going to go through that?

MR. STEWART: As the Staff goes through and does their safety evaluation, we basically -- I think it's discussed in general how we discussed the A-2 stuff, and the SBO stuff falls out of it. The fire protection was pretty straightforward in answering that, as well as the external concrete.

MR. ROSEN: Well, this ISD-2. You know what that is, the one on station blackout.

MR. STEWART: Right.

MR. ROSEN: And that's what I'm trying to get somebody to talk about.

MR. STEWART: Some of the Staff will talk about it.

DR. KUO: He will bring it up.

MR. STEWART: Right.

MR. ROSEN: All right.

MR. SIEBER: Well, that was actually addressed in the SBR.

MR. STEWART: Yeah.

DR. BONACA: I have some other questions too on the scope, if I could ask. First of all, I don't understand why the axial power distribution monitoring system is not in scope. I mean, could you explain to me. Maybe I misunderstand what it is. It's a nuclear-related system, I guess, to --

MR. BARTON: Axial power monitor.

MR. SIEBER: Yes, it's --

DR. BONACA: I guess it's not used for any such detection?

MR. STEWART: It's not used for -- I think it's the indication. We don't use it for any protective features or anything.

DR. BONACA: I guess the freeze protection system is also -- it doesn't give you -- I mean, it doesn't monitor freezing in any of the tanks or anything like this.

MR. STEWART: That's correct.

DR. BONACA: Okay. And I have one last question about scope, which is to do with the thermal shield. I'm confused about what took place there. First of all, you took the position the thermal shield is not in scope because it is not exposed to high radiation, and I couldn't understand that.

MR. SIEBER: It's pretty close to the reactor.

DR. BONACA: Yes. So then I notice that the staff asked questions about that.

MR. STEWART: Right.

DR. BONACA: But it's evaluation was that it doesn't need to be in scope because other components are monitored that would give lead information about the thermal shield.

MR. STEWART: Okay.

DR. BONACA: Okay. And I still don't understand how -- what is the basis for not including thermal shield, which is highly exposed component in scope?

DR. KUO: If I may, I'll ask Jim Medoff to address the issue.

DR. BONACA: Okay.

MR. MEDOFF: Do you want me to address it

now?

DR. KUO: Yes, now. If you can answer briefly.

MR. MEDOFF: This is Jim Medoff. There was an aging management review for a number of the internal components, void swelling and radiation embrittlement, and it's one of the items that GALL or the SRP recommends further evaluation, so they addressed each one of the components to just fall back by the standard review plan.

They concluded that the thermal shield didn't have a hot enough fluid, so we asked a question on it, and they pointed out that the thermal shield is -- some of it's in the area of the radiation zone, and so we thought that they should provide aging management.

The way the -- we had discussions with the applicant. The way they addressed it was they -- the applicant was one of a few applicants that have a really strong commitment in its PWR internal program. The commitment is to participate in industry programs, to implement the recommended activities from the EPRI/MRP work task and vessel internals, and to submit the inspection plan to us prior to the -- within a certain period of the

extended period of operation for the review and approval. And I think we have about two years to look over the inspection plan.

Based on the strong commitment for the PWR internals program by the applicant, we concluded that they didn't have to really propose aging management of the thermal shield right now. What we would do is let the industry organizations look into what type of aging defects are applicable to it, and see if we need to add it on later on when they've reviewed the inspection plan, so that's basically how we handled that.

DR. BONACA: Still I'm left, you know, with the feeling that, again, this component is not in scope. That's the statement, it's not in scope until -- they just didn't determine what to do with it.

MR. MEDOFF: I don't think it's -- you would have to ask that one of the scoping reviewer. I'm not sure that it wasn't in scope. I do know that they didn't have an aging management review for it, so you would have to ask the scoping -- that of the scoping reviewer.

DR. KUO: It's just that they're not relying on it. Correct?

MR. MEDOFF: It's not that they're not relying on it. It's that they are not proposing aging management of it right now.

MR. STEWART: We would have identified no aging mechanisms that required aging management programs at this point.

MR. MEDOFF: Right.

DR. KUO: Well, it isn't in scope. You review it. There's no aging management program required, so I guess --

MR. STEWART: I'm not sure. I'd have to go back and look at it.

MR. MEDOFF: What the GALL does, it has an AMR -- the GALL report has an AMR calling out certain vessel components, including the thermal shield. And they did call out the component. It talked about the component in the aging management review. It's just that we had some questions on it, and we wanted to know how they were going to do aging management, so what -- the way we handled it is they're going to rely on their participation in the industry organization. They discussed it in Chapter 3, it would have been the cause. We determined it was in scope in Chapter 2 --

DR. BONACA: Well, let me explain the

reason why I'm concerned about it, is that, you know, thermal shield problems have been experienced by the PWR in the past. Okay. Some of them resulted in vaulting failures, cracks in the barrel and things that have to be done. Some loosening is an example, maybe things need to be done were never repaired. And typically, you have pretty careful inspections in the following years, and commitments because of the repairs. Others do not experience failures. For example, we are reviewing right now Fort Calhoun. They have digressions, however, in the late 80s and they have to replace a number of things that support the thermal shield. Now, of course, the issue is the vertical vibrations, and we, in general, fall back into the same situation. Here now when the thermal shielding comes in, and for which you don't have any specific problem, because there is no aging --

MR. MEDOFF: But I don't think that's correct. It's not that there's a program. It's that when we did our aging management review, if you look at the PWR internals program called out by a lot of -- a vast majority of the aging management reviews and the GALL report, what it does is it's a further evaluation, as it tells you to propose a plan-specific aging management program which is PWR

internals. And then if you look at the discussion in GALL, it talks about either proposed aging management or discuss participation in --

DR. BONACA: But the previous conversation that took place here where I heard that there wasn't any specific aging management program that was needed.

MR. STEWART: No, it's not that.

DR. BONACA: That's what I heard. Am I wrong?

MR. STEWART: No, I think the way we handled it is we handled the way the commitments for the PWR internals to determine through the EPRI/MRPs activities on internals to determine whether they needed to add it to their inspection plan when they submit the inspection plan for review and approval, so that's how we handled aging management for the thermal shield.

MR. SIEBER: It seemed to me that a lot of the thermal shield and internal involvement were in a plant of a different brand than this plant, like Brand C versus Brand W.

DR. BONACA: Well, I don't know. I mean, I just --

MR. SIEBER: So Brand W doesn't really

have a lot of specific things going on. Brand W has, for example, prepared --

DR. BONACA: But this is -- this is the last question. Is the thermal shield going to be inspected specifically, or are you looking to just allow the components to determine the condition of that.

MR. MEDOFF: The MRP -- the EPRI/MRP task group on internals is going to be coming in to discuss their programs for PWR internals in the next month or so. The way we have been handling participation in the industry program is we've been really asking for applicants to commit to implementing recommendations of the EPRI/MRP for inspections of their internals. So if it's something like void swelling, where you're not quite sure exactly which components you're going to get void swelling on, or in this case maybe cracking of the thermal shield, or irradiation embrittlement of the thermal shield.

What we're supposed to do in our interactions, the Staff's interactions with the EPRI/MRP is to raise those topics with the EPRI/MRP to look into studies to investigate whether -- which type of aging management activities need to be

proposed for those components. And for all applicants, we've been asking for commitments to implement the industry's recommendations, and to submit inspection plans. Robinson, we didn't even have to ask them for it.

DR. BONACA: So, I mean, I guess the answer I'm hearing is that the component is in scope.

MR. MEDOFF: Right.

DR. BONACA: And that activities may be initiated consistent with the recommendations of the EPRI --

MR. BARTON: And I think they say that in Item 8 in Table 311, Mario.

DR. BONACA: The commitment - -

MR. BARTON: In the LER, Table 311, Item 8 in the discussion.

DR. BONACA: Well, it is based on 366 and 367 of the SER. You get mighty confused.

MR. BARTON: Okay.

DR. KUO: Let us get back to you after the break.

MR. ROSEN: This gets into an issue now. We're proposing to take a current licensing action, that is, to extend the Robinson operating license based upon a future industry -- based in part upon a

future industry action, the MRP. And what -- so I pose this question. What if the MRP proposals are not acceptable to the staff, what happens then?

DR. KUO: The staff is working with the industry group on the resolution for the issue. If the Staff doesn't accept it, that -- the Staff will be able to tell them that we are not accepting this.

MR. ROSEN: But you've already -- presumably by that time, we will have already moved ahead with the license renewal for Robinson.

MR. STEWART: Our commitment for Robinson indicates that it's industry recommendations, as agreed to by the Staff, so if the Staff doesn't agree with recommendations, I can't meet the commitment.

DR. KUO: We will have to agree with it.

MR. MEDOFF: Can I address that?

DR. KUO: Go ahead.

MR. MEDOFF: Their commitment to get their programs into -- inspection programs for these internal components are equally on another area, nickel-based alloy components, which we discuss later on, is that they will have at least two years to review the inspection plans, to review the EPRI's programs, and to have dialogues with the applicant to discuss areas of contention where we may not agree

with the MRP and where we think more aging management is necessary, so they've given us at least a two year period to review the inspection plans when they submit them.

MR. STEWART: The other thing about the Robinson plant, if you will think of us in perspective to your other applicants, our in-service -- our license was issued in 1970. Our period of extended operation begins August 1st, 2010. All of these programs that you're talking about, we may be coming in later in the queue on license renewal, but we're one of the first up in terms of when the period of extended operation begins. We have a vested interest in participating with the industry and getting these programs agreed to and in place, because we're going to be in early with them compared to some of the other applicants you've already approved.

MR. MEDOFF: Dr. Rosen, I just want to tell you, because I know where you're coming from. I've talked to my management and told them for these types of programs where they're relying on industry activities, that we really have to keep on top of the MRP to make sure they're looking into the -- you know, aging of the components, you know, so they can

get the programs.

DR. KUO: The question is, what if the staff does not agree with the proposal proposed by the industry group?

MR. MEDOFF: The inspection plan is for review and approval, so we will work that out with --

DR. KUO: The answer is the staff will have to agree, and to endorse it.

MR. ROSEN: The inspection plan, so the proposal based on MRP, you don't agree with it in our hypothetical situation, so instead of that, you can just say okay, we don't agree. You wait for Robinson to come in with their inspection plan. The MRP-- You say you don't agree with the inspection plan, and you, at that point, can force changes on a site-specific basis to Robinson II's inspection plan?

DR. KUO: Correct.

MR. STEWART: We negotiate one that's agreeable to you.

MR. ROSEN: I don't want it to happen, but I wanted to explore the boundary.

DR. KUO: Yeah, but that really is going to happen if the staff doesn't agree with the proposal, it won't go. The staff won't endorse it, so they have to change the inspection plan.

MR. MEDOFF: Dr. Rosen, we have the same question. What if we don't agree? And they said well, that's why we're giving you a two year period for review of the inspection plan.

MR. SIEBER: Let me ask a question about this slide before it disappears.

DR. KUO: Yes, sir.

MR. SIEBER: You say no major exceptions to GALL. And I guess that statement is sort of in the eye of the beholder, whether it's major or not. I will say that they were easy to find because they're in the table, and I like that, so my piece of the review was easy. On the other hand, I wondered about one thing. You take exception to the one-time inspection for branch lines connecting to the RCS. And I thought about that, and I thought well, Section 11 of the ASME Code says you've got to inspect a certain portion of those, maybe after 4 years you would get them all. And so the one-time inspection may not be necessary.

On the other hand, since you're already doing it, and since that is a vulnerable place; for example, bent lines that act like pendulums with fatigue and cracking, and leaks in the function of those, safety injection lines is another one, are not

here. Why would you take exception? What was the thought process? And then when we get to the staff's presentation, I will ask why did you approve it. Maybe you can answer that for me.

MR. STEWART: I'm not sure if I understood the question, but relative to any exceptions, the way we identified exceptions is, if we had an exception to a specific element in a GALL aging management program, we pointed what that element was, explicitly stating the exception, and stated why we said it was all right, to make sure it was identified for the staff. They had our logic on it, and could question it.

Now in terms of the one-time inspection --

MR. SIEBER: For branch lines.

MR. STEWART: My recollection of the GALL program for the one-time inspection is it's -- this is my recollection, it could be wrong. But I thought it was intended to validate; typically you credit chemistry, as well as ISI on maintaining your pipe in such condition you don't have any cracks or indications. Now what happens is on anything that's four inches or less, typically only on a visual examination, so the GALL program --

MR. SIEBER: Right.

MR. STEWART: The GALL program was to basically go back into the smaller diameter stuff that you only do a visual examination, is to do some sort of a validation, either by looking on the inside of the pipe or some sort of a -- some more extensive thing other than visual examination. You were coming up with a sampling program to validate that your chemistry was, in fact, effective, and weren't having pipe cracking and defects. And I'm not aware that we took any exceptions to that.

MR. SIEBER: Well, it's in here. The exceptions to the one-time exam, the code requires a BT. Now because the geometry is terrible, so you can't use any kind of audiometrics, so BT is probably all you could use. If you're relying on that and saying I'll be through four intervals by the time license renewal comes along, and in four intervals I will have caught every one, every branch line, and I guess I'm satisfied. But there's 150 branch lines. There's a lot of them, so maybe --

MR. STEWART: We'll address that.

MR. SIEBER: Yeah. Maybe you folks can think about it while we're going through this, and decide. It's not a big issue with me. On the other

hand, I have been personally involved with several that leaked.

DR. KUO: That's the reason we take exception to Section 11 Code, because like you said, Section 11 Code for small bore piping less than four inches, only do the service examination and all that. It doesn't do any voluntary examination.

MR. SIEBER: That's correct.

DR. KUO: And in order for us to really know, you know, whether the small bore piping is really in good shape or not, the exceptions that we took in GALL is that we would like to have a one-time inspection for these small piping to verify whether there's indeed no never- mind thing, or that there are cracks or leaks. If they are, then take another corrective action. That's the intent of that.

MR. SIEBER: Okay. Thank you.

DR. BONACA: And the final scope, I mean -- another issue I'll raise when you come up, and it's one dear to my heart, as you know, has to do with the pressurized spray head. You raise the same question. Now the story is different. The story is that the applicants are varied in experience and concluded that such a failure has not occurred anywhere else. And that's the basis for excluding

it. But it's not clear from your confirmatory item that are waiting to have a confirmation of the operating experience, or if you're waiting to have the applicant agree that the pressurized spray head should be in scope, so I'll need to have a clarification on that. Can you give it to me?

DR. KUO: Later on.

DR. BONACA: All right.

MR. SIEBER: The safety function is rapid depressurization.

MR. STEWART: Okay. Now I'm going to discuss our commitments in tracking. In the SER in Appendix A, as you go through, there's an indication that some of the commitments were withdrawn because there was no changes required. In discussions with Staff, we've discussed this, and we've agreed that for the final SER, what we're going to say is rather than say commitment withdrawn, we're going to be crediting an existing program and we require no changes in it, so if you go through the SER in Appendix A, and you see that, that's what those -- that will be changed to clarify it. All that really indicates is we were able to credit those programs, required no changes or enhancements.

Basically, that leaves us with 37

commitments that do require some enhancements or changes. Those basically constitute 27 enhancements, and we also ended up implementing or identifying 10 new programs that we're going to have Robinson for the period of extended operation. I'm not going to go in and discuss those, because that will be covered later by the Staff.

Relative to these commitments, all of these commitments have been entered into the MRP commitment tracking system. Mr. Julian will talk a little bit about that. He got the opportunity to see some of that. Looking at commitments, looking ahead, what we're anticipating doing, we did the license renewal effort on Robinson. I'm actually part -- I'm on-site, but I'm part of an off-site organization, so I don't actually belong to the Robinson plant.

We envision transitioning this project, finishing the project, closing the project out in terms of off-site organization, and we'll move on and do something else. The plant staff will still have commitments to carry out.

We've taken a look at the commitments that we made, and we envision 18 of these commitments are fairly easy to accomplish, even though they may not be required prior to the period of extended

operation. We're going to go ahead and implement them in their procedures and get them done near term. And by "near term", I mean prior to June 30, 2004, before we go away.

CHAIRMAN LEITCH: And those 18 presumably include the 10 existing programs?

MR. STEWART: Yes.

CHAIRMAN LEITCH: So there's really only 8 of the 37 that you're --

MR. STEWART: Actually, there's 19 of the commitments that we will be -- that we anticipate transitioning. And by "transitioning", what I mean is right now all the commitments are assigned to the license renewal organization. If you envision that organization is going to go away some time next summer, I need someone on the plant site that owns that commitment. So we have a transition plan in place that we'll work with someone in the plant staff organization, make sure they understand the commitment.

For example, the one that James was talking about on reactor vessel's internals, we're already going to have that accomplished next year, but I've got to have a plant person that's going to own that program. So we're going to work with the

plant, make sure that they understand what's behind the commitment. They'll own the commitment, and make sure that we've got it implemented prior to the period of extended operation.

CHAIRMAN LEITCH: I read in the NRC inspection report that tracking of the action items is not yet integrated into the plant systems; that is, tracking of these action items, I assume is what it's referring to.

MR. STEWART: Mr. Julian will probably --

MR. JULIAN: But it has been now.

CHAIRMAN LEITCH: It has been now.

MR. JULIAN: It has been now.

CHAIRMAN LEITCH: Okay.

MR. JULIAN: They've gone back and looked at other work and verified that he has incorporated all these as he's describing into the official plant practices.

CHAIRMAN LEITCH: Okay. Now it also said that would be done, and would be subject to a subsequent NRC inspection. So what you're saying is that inspection has now taken place?

MR. JULIAN: We have done that.

CHAIRMAN LEITCH: Okay.

MR. JULIAN: And this was the inspection

report.

CHAIRMAN LEITCH: Okay. Good. And in a similar vein, there was a comment that the boric acid control program, the linkage to plant procedures was weak. And I guess I'm surprised. I can assume that's one of your existing programs.

MR. STEWART: It was one that required an enhancement, and that is an enhancement that we are making.

CHAIRMAN LEITCH: Okay. And similarly, has that action been completed?

MR. STEWART: Not yet, sir.

MR. JULIAN: It's one that's scheduled for towards the end of the year, the boric acid.

MR. STEWART: Is that for EPO SLER?

MR. DONAHUE: We've got a corporate level procedure being developed on our site, but Robinson in particular to review something that now is claimed to be in place and used here at Robinson for fueling outage coming up this spring.

MR. ROSEN: What is this reference to EPO SLER you just made?

MR. BARTON: This is the Davis-Besse SLER. It's got a whole bunch of action items.

MR. ROSEN: I know. What particular

recommendation of the INPO SOER 0204 on Davis-Besse were you referring to?

MR. STEWART: I'm not sure, sir. What we did is we have four operating nuclear stations in Progress Energy, and we did a round-robin assessment of the boric acid programs at all the stations, and what Mr. Donahue is referring to is each one of the plants right now has a current plant program, and we're trying to move ourselves to a corporate program on boric acid. Rather than try to enhance each one of the stations, we would rather have a stronger corporate program, and that's what the move is toward.

MR. DONAHUE: We're incorporating the recent assessment of the raw corporate organization, the Westinghouse plan and information from INPO on working with boric acid.

CHAIRMAN LEITCH: And I guess this is kind of the same question. I thought I heard there, as well, that a subsequent NRC inspection was required. Is that -- regarding this boric acid linkage to plant procedures. Is that correct?

MR. JULIAN: We took a look at where they are on the screen during its third inspection, and they have an internal review of their nuclear

assessment section that identified and paralleled the same issue, and that's tracked to be resolved by the end of the year. We were satisfied with that because the tracking was --

CHAIRMAN LEITCH: So that -- I guess that's a piece of information I'm missing, and maybe I'm getting the cart before the horse. But typically, there are two NRC inspections required of license renewal activity, and sometimes three. And at Robinson, you did the third?

MR. JULIAN: Right.

CHAIRMAN LEITCH: And that has just recently been completed?

MR. JULIAN: That is correct.

CHAIRMAN LEITCH: And I don't think we've seen the results of that, so that may be the linkage we're missing. I've seen one and two, but I don't think I've seen the results of three yet.

DR. KUO: That's being issued.

MR. JULIAN: Yes, it is.

CHAIRMAN LEITCH: Okay. So I can see it. Okay. Thank you.

MR. STEWART: Continuing with commitments and commitments tracking. Once we've implemented a commitment, typically these commitments are in some

sort of a procedure, work procedure or whatever we agree at. We will have identified the specific -- we will identify it as a commitment in the implementing document, and that doesn't mean that you can't revise the document. But if you do revise it, you have to go through the 50.59 process, determine if there's any unreviewed safety question, or if you need to go back to NRC if you're doing anything that might affect the commitment. So we identify, we basically implement the changes, make the changes in the document, flag them as a commitment to the NRC, and rely on a 50.59 process to make sure that we don't do something in the future that might negate the commitment.

One other thing that we envision is after we -- we're working on -- currently now we're taking a look at our configuration control process so that we can incorporate some guidance to ensure that the requirements of 10 CFR 54.37 are met. These are basically, if you identify new structures or make a change or something, you basically go through the same sort of process that you would initially when we did the IPA on the plant. So we're looking at putting some controls in our configuration control process to make sure that we're looking at that.

We'll support this by -- when we do this, we'll do license renewal training to make sure people are aware of the requirements. We'll also have the equivalent of a license renewal design basis-type document. And, of course, we'll have the -- we will have issued -- it'll be Chapter 18 in our UFSAR, which would be a UFSAR supplement for license renewal that has all the program descriptions. And that's currently Appendix A in our license renewal application. That's all I have.

CHAIRMAN LEITCH: Okay. Any questions for the applicant at this time? Okay. Thanks very much. If you're going to be around, there may be questions. You know, some of this is -- it's not a bright line between the applicant and the NRC discussion, so we often bounce back and forth. Thank you. Okay, P.T.

DR. KUO: Okay. S.K., your show. We are about 30 minutes behind, so we've got to make up the --

MR. MITRA: I'll go as fast as I can. Good afternoon. My name is S.K. Mitra. I am the Safety Review Project Manager for Robinson Nuclear Plant. Actually, the plant's name is H.B. Robinson Steam Electric Plant, Unit 2, but we call it Robinson

Nuclear Plant, and in safety evaluation report we also called it Robinson Nuclear Plant, so it's much easier to speak about.

And with me, I acknowledge Dr. Mario Cora, who have helped me for the last few months to get together the safety evaluation report, and Mario will join us to do some presentation, part of the presentation with me. And also later on, Caudle Julian from Region 2, he's the Team Lead for all the inspections, so he will highlight the inspection presentation for us.

The application was submitted on June 14th, 2002. It's a Westinghouse pressurized water reactor, 3 loop low cycle, generated 2339 megawatt thermal, and 769 megawatt electrical. We'll just go one unit at a time. And the plant is located on the shore of a manmade lake, Lake Robinson in Darlington County, South Carolina. And the current license will expire on July 31st, 2010, and the request for renewal to July 31st, 2030. And this is the second application we have reviewed using the GALL process.

We have two open items, and we have 29 confirmatory items. Let me explain what open items and confirmatory items mean. Open items means that the issues that was not resolved when we issue our

SER with open item, which is on August 25th, that's the open items. Two of them were still open at that time. The confirmatory items were the issues, we have resolved it, but we still waiting for the formal reply under oath and affirmation from the applicant. And we have received it, but we didn't go through the review as yet, and when Staff have a chance to review it, and they will include in their final SER those confirmatory items.

CHAIRMAN LEITCH: How are the two items resolved; that is, the steam generator feed drains and the feed well pumps?

MR. MITRA: We will address it.

CHAIRMAN LEITCH: These are the audits and inspections we have done, three inspections and two audits. The first one was the scoping and screening methodology audit. The second one is the scoping and screening inspection. We did aging management program audit, and we did aging management review inspection. And the last one, as Mr. Leitch was asking, is the final inspection, which we do in September 9 and 10 and the report was just being --

DR. BONACA: It was issued a new license.

MR. MITRA: Yes, sir.

DR. BONACA: I mean, you described that you're going to have more time spent on-site.

DR. KUO: Right. And if I may, I'd like to point as the aging management program audit, this is the first one in a series of three, Robinson, Ginna and Summer that we will send a team of about 7 to 8 engineers and go into the site to verify the consistency with GALL parts. So, the rule we had was that when the applicant in their application indicated that their aging management program is consistent with GALL, the Staff only verifies a few boundary perimeters, but will not do the repeated review as we did in GALL, so the reviews stop there. But we would like to verify their consistency on-site, whether they have made the right judgment in terms of making a call that their program is consistent with GALL or not.

So that's what we started with Robinson, and we did two others. And after that, we will talk to the Committee again, when we have this new process. This is the period of a new process.

MR. MITRA: And we will be addressing each of the audits and the inspection later on as

we progress.

DR. BONACA: Could I ask how many RAIs you have for this plant?

MR. MITRA: Okay. We have over 310 RAIs.

DR. BONACA: See, what surprises me is that you used to have 170, 180. Then we get the first GALL, and that's 240. I keep this tally. Now we have the second GALL and we have 350. I mean, these numbers warrant explanation.

MR. MITRA: Yeah, I -- my feeling is that the RAIs that we have in Robinson review is in the same ball park with the Fort Calhoun. The only difference is how the RAIs are structured. You know, you just see the numbers and not always give you the exact issues of the RAIs. And secondly, since Fort Calhoun was the first GALL plant that Staff reviewed, we went back and did a second evaluation of the RAI process. We call it potential open items, and it has 13 items, but we have 59 issues in there. So if you add up, it comes about the same.

DR. BONACA: I guess where I'm going is that you're increasing the number of weeks you're spending on-site, which I believe is the right

thing to do. I would expect to see a reduction in RAIs as you go forth because, I mean, you're solving issues as you go, and you have to write them down.

MR. MITRA: As we are --

DR. KUO: For this plant, actually, the RAIs were generated as using the traditional process, so the auditor went to the site only to verify the claim that these programs are consistent with GALL. And actually, they did some verification on the RAI process.

CHAIRMAN LEITCH: Wasn't another factor, though, that the ISGs were just being promulgated at this time.

MR. MITRA: Yes.

CHAIRMAN LEITCH: And the RAIs were a supplement to respond to the ISGs. I mean, had that all been done up front, it might have reduced the number of RAIs.

MR. MITRA: Exactly, because the RAIs were submitted after the application was here, and most of the RAIs on those ISGs were already being issued.

MR. ROSEN: So what is the first plant where we could expect to see a reduction in the

RAIs?

DR. KUO: I would say starting from Farley you will see a significant reduction. Farley is here already.

DR. BONACA: Yes.

DR. KUO: But starting Farley, we used the new process. We sent auditor teams on site review.

CHAIRMAN LEITCH: Before that there is Ginna and Summer --

DR. KUO: Dresden and Quad Cities.

CHAIRMAN LEITCH: Dresden and Quad Cities. How about Brown's Ferry?

DR. KUO: Brown's Ferry would be in September, I mean in December, I'm sorry.

CHAIRMAN LEITCH: Okay.

DR. BONACA: So, hopefully, we are not seeing growth any more of the --

DR. KUO: I hope too.

DR. BONACA: Because, I mean, this is a question we have from the Commission. We are meeting with the Commissioners on Thursday, and when we talk about license renewal, the question always comes, you know, are we getting better, are we getting more efficient? And, you know, my

desire is to say yes, sir, but as long as we see the number of RAIs growing --

MR. SIEBER: Just say it, we're getting better and better.

DR. KUO: If you see the same number of RAIs for Farley, it means that we failed in the process.

MR. BURTON: Dr. Bonaca, this is Bill Burton with the Staff. I think you'll see in the presentation for Fort Calhoun tomorrow, we're going to be talking about some lessons learned, and a lot of which you're seeing with Robinson is some of the implementation from some of the lessons learned from Fort Calhoun. And some of those things had an impact on the number of RAIs and things like that, so we'll talk about that a little bit tomorrow.

DR. BONACA: Thank you.

MR. MITRA: Any other questions? If not, I will have Dr. Mario Cora to present the scoping and screening portion of the presentation. Mario.

DR. CORA: Okay. Good afternoon, members of the ACRS Subcommittee for H.B. Robinson, our co-workers and members of the public. My name is Mario Cora. Today I will be presenting Section

2, which we heard in some SER that we put together. I have been assisting Mr. S.K. Mitra, who is the Lead Project Manager in this project, the safety part.

Section 2 is entitled "Structures, Components Subject To An Aging Management Review", and this section in the SER is divided in five sub-sections. I will be going through the sub-sections subsequently.

The first section is Section 2.1, which deals with the scoping and screening methodology that the applicant used in describing the license renewal application. And our evaluation in the SER, we present our evaluation of the applicant's scoping and screening methodology. As part of the -- in Section 2.1 of the SER, we describe our Staff methodology audit. Staff evaluated the applicant's methodology to being in scoping and screening in the license renewal application.

CHAIRMAN LEITCH: Say, Mario, in the interest of time, unless some of the Committee has specific questions, I would suggest may be jump to 2.3.

DR. CORA: You want to jump?

CHAIRMAN LEITCH: Yes, to 2.3.

DR. CORA: 2.3.

CHAIRMAN LEITCH: That's good, yeah.

DR. CORA: So 2.3 describes the mechanical systems, and in the license renewal application, this section is divided in reactor systems, engineered safety features, and auxiliary systems. These numbers we see in parentheses are the systems dealing with each of the major sections.

These were the system structural components that were initially omitted that meet the scoping criteria. These were the steam generator feedrings, the work pumps and associated piping, the hydrogen recombiners, spent fuel to make a path from the feeding water storage tank to the flow path. The systems were brought into scope after the Staff evaluated the aging management review.

CHAIRMAN LEITCH: Now the hydrogen recombiners, aren't they no longer required as per the changes to 50.44, or is that not yet the case, but at the time --

MR. STEWART: The rule change has been issued. We have not taken advantage of the rule change and take them out of our current licensing

basis.

MR. ROSEN: So the rule requires a site-specific amendment?

CHAIRMAN LEITCH: Yeah. I'm just -- I mean, I don't have a safety concern, obviously. It's just that efficiency, I was just surprised that they were still in there.

MR. ROSEN: Well, if they weren't, we would have complained.

CHAIRMAN LEITCH: We would have complained --

MR. STEWART: The rule change was just issued.

MR. ROSEN: Because they have to be removed by a site-specific --

DR. CORA: This is still their current licensing basis.

MR. ROSEN: So you can't win this one.

CHAIRMAN LEITCH: Let's move on. I'm sorry.

DR. CORA: So you want to continue on Section 2.3?

CHAIRMAN LEITCH: Right.

DR. CORA: Jumping to Section 2.3, we have two open items in the SER, and the two open

items are in Section 2. The open items are 2.3, 1.6-1 deals with feedrings, deals with the feedrings into scope, license renewal. The Staff understands that safety-related component, feedrings, is inside the safety-related component, and the Staff understand that should be brought into scope. In this part, within the feedring and j-nozzles could damage the safety-related components, especially when you get a transient. After the evaluation, the applicant submitted a response and this is in scope of license renewal. Up to this point, the open item is resolved.

The next open item we have is 2.3 3.8-1, where we have deep well pumps, and basically the issue here is following a Lake Robinson dam failure, the condition, the condensation storage tank, the deep well pumps will be the final supply of water for us evaluating feedwater. The Staff requested an RAI why there was an exclusion of the deep well pumps, and that issue was resolved.

CHAIRMAN LEITCH: So these deep well pumps in a last ditch effort then supply what, is it ground water?

DR. CORA: Yeah, that's my understanding.

CHAIRMAN LEITCH: Ground water to the aux feed system.

MR. STEWART: That's correct. That's after we run out of lake water.

CHAIRMAN LEITCH: Okay. So the deep well pumps feed the auxiliary feedwater storage tank?

MR. STEWART: They can feed the storage tank within --

MR. SIEBER: Pumps right in.

DR. CORA: So now I will present two confirmatory items in Section 2. One of them is the hydrogen recombiner, and basically, the Staff understand that the hydrogen recombiner should be brought into scope. And after the RAI was issued, the applicant responded, and this hydrogen recombiner were brought into scope of license renewal.

The next confirmatory item deal with the spent fuel pool makeup path. Okay? This was a confirmatory item that was an issue in the SER, and deals with the path between the refueling water storage tank and the spent fuel pool. And the Staff believe that that piping connection should be brought into scope, and on an RAI, the applicant

responded and this was brought into scope of license renewal.

Section 2.4 in the SER deals with the structural components subject to an aging management review. The way that the license renewal application is organized, it's organized in committing from the containment as a balanced structure, and then it lists 13 other structures. Up to this point, when we issued the SER, there is no open items or confirmatory items in this section.

Section 2.5 deals with the electrical systems and instrumentation, the control system. The Staff requested why these main components were not in scope, and up to this point, they show background components were brought into scope, and all associated components dealing with this were brought into scope.

MR. ROSEN: Now before you get off this slide, this is where my question was, about Building 175, which is the switch yard relay building, and the switch yard and transformer itself. Are they now all in scope?

MR. MITRA: Yes, all in scope.

MR. STEWART: Portions of it.

MR. ROSEN: Yeah, because the May

inspection report has a table at the back that says they are not.

MR. JULIAN: That came from the original application, that information, pointing out originally the application came in and they did not address station blackout and so it's been a retrofit going through the process.

MR. ROSEN: So your inspection was against the original application.

MR. JULIAN: We pulled that out of the application.

DR. KUO: They brought in, for the SPO they brought in four additional structures.

MR. ROSEN: Four additional structures, not just two. Now, you list the switch yard and transformers, we're talking about the unit auxiliary transformer and the main transformers? What are the transformers that we're talking about that are now in scope?

MR. STEWART: The startup transformer.

MR. ROSEN: Just startup. Is there a startup transformer?

MR. STEWART: Yeah.

MR. ROSEN: So those three, at least those three transformers?

MR. STEWART: Yes.

MR. ROSEN: Even the auxiliary startup and main?

MR. BARTON: I'm not sure. I'm confused. On page 245-2 of the LAR, item 1, electrical bus has been eliminated from the aging management. And that item describes the isolated phasal, switch yard and transformer and associated switch yard bus. Now I'm assuming that to be the main transformer in that piece of equipment.

DR. KUO: I have the technical --

MR. BARTON: So I'm confused between that and what you're saying now is switch yard, switch yard house, and all the stuff required for SBO is now in scope. Is that different than what you described in Section 2.5-2 of the LAR?

DR. KUO: I have the reviewer here.

MR. BARTON: I think that would clarify the --

MR. ROSEN: Maybe if you step up to the diagram and show us what's in scope and what's not.

CHAIRMAN LEITCH: You need to identify yourself.

MR. SIEBER: Here, I'll give him the laser. He can use that if he wants.

DR. KUO: Identify your name, please.

MR. PAL: This is Amar Pal, Electrical Engineering Branch. The first breaker that sits here on the offsite source, number one offsite source.

CHAIRMAN LEITCH: Is that in the switch yard there?

MR. PAL: This is the switch yard.

CHAIRMAN LEITCH: Yes.

MR. PAL: This is the switch yard bus. This is the breaker. This is this portion of the bus from the switch to this portion of the bus, and this connects to it and then another breaker. This is the transmission conductor for the primary status transponder, and then from the startup transformer, by means of a non-segregated phase bus, goes to the non-transforming switch gear. And then from the non-transforming switch gear via step-down transformer to breaker bus goes to the emergency bus. See, this is the transformer and you have to -- so this -- and the other one is from this transformer here to the D-train and the A-train, this being the first --

MR. ROSEN: All of that in red is in scope now.

MR. PAL: Yes. And then the second off-site source is through the main transformer. This is the breaker, this is the bus, same thing, to breaker, and the transmission from that to the main transformer. To get this supply, they have to disconnect the generator from the transformer. Without that, they can't get this off-site source so they disconnect the transformer and so on.

MR. ROSEN: So everything in blue there is now in scope.

MR. PAL: Now in the scope.

MR. ROSEN: And that source in the upper right-hand corner is the Unit 2 switch yard.

MR. PAL: This is the switch yard, yes.

MR. ROSEN: For the Robinson Nuclear Plant.

MR. PAL: That's right.

MR. ROSEN: Now on the other side, is the switch yard for the non-nuclear plant.

MR. PAL: No, this is their off-site source.

MR. ROSEN: It's their off-site source?

MR. PAL: Yes.

MR. ROSEN: I want to talk about the left side. Stay there. Where physically are those

breakers located?

MR. PAL: These breakers in the switch yard.

MR. ROSEN: Which switch yard?

MR. PAL: The 230 KV switch yard.

MR. ROSEN: What? I'm sorry. I can't hear you.

MR. PAL: 230 KV switch yard. They have two switch yards.

MR. ROSEN: I know. So that's the 230 KV switch yard, which is associated with which unit?

MR. PAL: The same nuclear unit, Unit 2.

MR. HEATH: Amar, that's the 115 KV switch yard associated with Unit 1. And the other side Unit 2 is 230 KB switch yard.

MR. ROSEN: Okay. So your normal piece on the Unit 1 slide, and that has now got two breakers and some associated bus that are in scope for license renewal for the nuclear plant.

MR. HEATH: Right. That's where -- that's the issue I would put on the table.

MR. ROSEN: To me, that creates some issues that were not typical, in that now you've

got components of the nuclear plant's licensing basis, it's a renewable licensing basis, that are actually in the fossil switch yard, I mean, a non-nuclear switch yard. Is that correct?

MR. HEATH: It would be difficult -- the switch yard is all together.

MR. ROSEN: I thought you said there were two separate switch yards.

MR. HEATH: No, they're all together. There's one switch yard. The Unit 1 side feeds into the 115 KB. The Unit 2 side feeds into the 230 KB. It's all one switch yard. Typically though, that's the separation, just which plant is normally connected to which switch yard, which set of the 115 KB or 230 KB. In other words, Unit 1 could shut down and it would make no difference to Unit 2, as far as that switch yard is concerned.

CHAIRMAN LEITCH: Now where is the second off-site source?

MR. PAL: Through the main transformer.

CHAIRMAN LEITCH: But is that a disconnect switch between the generator and that. There's copper links that must be removed?

MR. PAL: Yes. There could be some disconnector unit.

MR. ROSEN: But now we'll have aging management inspections on this portion of the switch yard on the left hand side.

CHAIRMAN LEITCH: Up to and including those two main circuit breakers.

MR. PAL: That's right.

MR. DONAHUE: Mike, these breakers here in the red, they're under existing scope. The red and blue are under existing --

MR. HEATH: I can't say. They are what these --

MR. ROSEN: And who takes care of those breakers in the switch yard? Is that the Progress Energy's transmission group?

MR. HEATH: Yes.

MR. ROSEN: Both the red and blue breakers.

MR. HEATH: Red and blue. We have an interface agreement with the transmission organization. Those are the same tech spec reference, for those playing the tech spec side. It's all associated. It's all maintained by the same group.

MR. ROSEN: And the switch yard relay building has batteries typically, which would be

now in scope? Am I correct?

MR. SIEBER: There are auxiliaries to the breaker.

MR. ROSEN: No, I'm asking them. Are those in scope? The switch yard relay building is now in scope, I've been told, 175. Batteries react, equipment interior to the relay building.

MR. REYNOLDS: The batteries are active components.

MR. ROSEN: Active components. So anything in that building, except the batteries, which are handled under Maintenance Rule is in scope because of license renewal now.

CHAIRMAN LEITCH: In scope that may be screened out because they're active.

MR. ROSEN: Well, no, just the batteries were active.

CHAIRMAN LEITCH: Other active components.

MR. PAL: Relays on there two.

MR. ROSEN: Relays might be screened out, yeah. But duct work and other things might not be.

MR. PAL: Electrical work and the cable capacity component is under.

MR. ROSEN: Well, that's right. So there will be activities, license renewal activities beginning sometime before the end of this term, the license term, in the relay building because of the license renewal of Unit 2, which will be inspected. This is always a tricky business, this interface with the external source. From an inspection point of view, and from a licensee management point of view, because you're interfacing with another organization, and the transmission review. Okay.

DR. KUO: Sometimes these components are actually are not owned by the licensee.

MR. ROSEN: They're not owned by them, but in this case they are.

DR. KUO: Right. The same license.

CHAIRMAN LEITCH: Could we get a copy of that little one-line diagram you just had up there too? That would be helpful if we could get a copy of that. Thank you. Go ahead, Mario. Thank you.

DR. CORA: So we -- the Staff determined that the applicant's screening satisfies the rule, and all system structural components within scope, are subject to an AMR.

Now I would turn over to Mr. Caudle Julian, who is a Team Leader for Region II. He will be briefing you on the audits and inspection.

MR. JULIAN: How do I go forward? We'll talk about, today, the license renewal inspections that were done at Robinson, and this just shows you the outline of what our program is. We've talked about it before. This is a slide that I've shown you before, I believe, that we have an organized program for license renewal inspection, our manual Chapter 25.16, and an inspection procedure, 71.002. And I've told you before, I think, that within Region II, we have a consistent team of inspectors that's gone from site to site, and we continue to maintain that so far, luckily.

Scoping and screening inspection, the objective of that is to confirm that the applicant has included all appropriate system structures and components in the scope of license renewal, as required by the rule. One week in length, starting March 31st at the Robinson site, and we had successful conclusion. The scoping and screening process was successful, we thought.

The things we ran across there that we dealt with, our inspectors independently came along

and questioned why Unit 1 and 2 fuel oil transfer piping deep well backup water supplies for auxiliary feedwater were not in scope, and we -- our inspectors came across that independent of NRR, and so we both worked together on that issue.

MR. ROSEN: What about the power supply for the B-12 pumps?

MR. JULIAN: I don't know where those are powered from. Do you know, Mike, the deep well pumps? He's asking if the deep well pumps have any emergency power supply, I presume, is your question.

MR. HEATH: They're not.

MR. JULIAN: Right.

MR. ROSEN: Are they in scope? Is the power supply for those pumps in scope?

MR. HEATH: We did elective scoping on the plant spaces and power suply.

MR. JULIAN: The answer is yes, as far as the cables and the power supply. I don't think it's off emergency power, because you wouldn't typically postulate --

MR. ROSEN: Oh, no. That's not - - I wasn't asking about emergency power. I'm just asking whether the power supply itself is

considered in scope for license renewal or not. I mean, how far back do you go? You're into your third backup here, and now I'm asking questions about the aging management of the third backup's power supply. I'm not getting a clear answer to that.

MR. JULIAN: The clear answer to that would be -- the easy pat answer is that all cables, they decided, are in scope; therefore, the cables themselves are in scope, but I don't believe those pumps are powered off emergency power. I would not expect that. They're a balance of plant type thing.

Let's see, how did I get ahead? How do I back up?

There are three examples of the inconsistency between the application and the boundary drawings and the calculations. We run across these paperwork discrepancies, and they repaired them. We ran across the calculation that they had and it's very confusing, describing how they're handling a non-safety related piping in the vicinity of safety-related. It was a very confusing procedure, and we struggled with that during inspection. Since then, they've gone back

and completely rewritten that procedure to make it clear how that work was done, and we're happy with it. Subsequently, as I said in an inspection we looked at, we think that these issues have been fixed.

The second inspection was the aging management program's inspection. The objective confirmed that existing AMPs are working well, and examined the applicant's plan for establishing new AMPs and enhancing existing ones. Two weeks in length, conducted in June.

What we concluded from that was that we thought that there was incomplete integration of a future task into the established site action request tracking system. That's the issue that Roger discussed a bit ago. Since then, we've gone back and confirmed that's been fixed. They had a tracking system, but it was a working tool. It was not utilizing the official plant future task action tracking, so they needed to integrate those.

We concluded our walk down inspection during this period of time, and we concluded that the material condition of the plant was being adequately maintained, and observed that it has improved over time. We think Robinson looks better

today than it used to in the olden days when we used to go there. The documentation was of good quality.

In this case, we wanted to make sure that we got the tracking system squared away, so we have completed already a third optional inspection, and we're satisfied that Roger has loaded everything into the official plant tracking system. And he has a good transition plan for completion of the license renewal project, and turning over of items that he himself will not get to complete.Now to say a word about the current status of the ROP, Reactor Oversight Program, and Robinson has a very good track record, as you can see. This is off our web site. All the performance indicators are green, and there have been no significant findings in the last two years, a couple of them, but they've been rated as green, very low safety signals. That concludes what I have to say. Do you have questions?

CHAIRMAN LEITCH: I have a couple of questions. I guess one related to this containment debris sump clogging issue, and you say something about a zone of influence. This is on the second inspection, page 14, zone of influence at 5,000

square feet.

MR. JULIAN: Right. That's our structural inspector, who's -- each time he goes there, he always challenges the applicant to see if they have the calculation that deals with plugging of sump screens, and how much is likely -- how much plugging is likely to occur. That's what he's talking about there.

CHAIRMAN LEITCH: My question was really -- maybe I have the wrong picture of this thing. I was picturing a zone of influence in terms -- I would expect the units to be in cubic feet. Not so? Instead of square feet.

MR. JULIAN: Gosh, I don't know. I really don't know the answer to that.

MR. SIEBER: The surface of --

MR. STEWART: Our reaction is we have a zone of influence defined. You go in, and there's an and there's an overlay of some drawings that says, here's te area you're worrying about, and typically what we do is we have stricter controls on the coding and stuff in those zones of influence. And since they're overlaid, there's an overlay on the plant general arrangement drawing, I would expect it would be in terms of square feet,

not surface area.

MR. JULIAN: I pictured it myself. That's why I thought you were saying those areas that could be impacted by high energy line break or something like that. You mentioned about the insulation on the walls, and it's -- they were not able -- I didn't go into containment, of course, during the time we were there. We did an earlier inspection on this, but the insulation was fairly well attached to the walls. It's on there with bolts, so we don't --

MR. ROSEN: But the things that get released when it's hit by a 2000 PSI stream of steam --

MR. CLEMENTS: But there's not a LOCA that could contain that. Because you have a feed line break or a steam line break, and --

MR. ROSEN: So it would be 1000 PSI.

MR. CLEMENTS: Yeah, but not a LOCA that --

MR. ROSEN: Right. Well, I would just think that a higher energy --

MR. CLEMENTS: If you had a broken primary, you don't put anything -- you have to put in the sump, and you're not worried about resource.

You have a breached primary, you don't worry about the sump.

MR. JULIAN: He's saying the steam line or feed line break would not challenge the reactor --

MR. ROSEN: It wouldn't need to go to --

MR. JULIAN: It wouldn't go to the circulation.

CHAIRMAN LEITCH: I had two questions that are perhaps more properly directed to the staff, one on page 7 of this second inspection report, and one on page 12. Page 7 talks about the one-time inspection program, and it sounds like that was yet to be developed at the time of this inspection.

MR. JULIAN: That is correct. That's a commitment, one of the commitments that Roger discussed to be done on down the road.

CHAIRMAN LEITCH: And the same question about the electrical aging management program.

MR. JULIAN: Their electrical aging management program is in a very infancy of being developed. They're one of the applicants who came in originally and said the application said we need

no aging management for electrical components. And I think that they revised their position. Am I correct?

MR. STEWART: That's correct.

MR. JULIAN: Yes. So they have a description of their plans in the future. They have yet to be developed yet for cable, primarily cable inspection.

CHAIRMAN LEITCH: I guess, you know, some of these where the aging management program is a commitment to future industry action and the industry's developing things, I'm not surprised that that's the case but, you know, like the one-time inspection program, I don't know what future industry actions are required. I mean, why couldn't that just be developed now?

MR. JULIAN: Correct me if I'm wrong, Roger, but typically the one-time inspection program is a different applicant group, done different ways, but there may be more than one of those things, and those are typically things where the Staff feels like that, despite all assurances, it would be good before the start of the extended operating period to have a one-time inspection inside branch lines, you mentioned on RCS, fire

protection I think may be another. And those are things that they have committed to do, but their commitment is to do them before the start of the extended period of operation, so they're going to drop loose and do them right now.

MR. BARTON: You guys did look at the electrical scoping when you were on site. What seems to be peculiar in this application is that there was a statement in here somewhere that there's no medium voltage cabling that requires aging management because it's not in an environment that's conducive to degradation of the insulation. All right. I find that hard to believe, that there's no 4160 kind of cable that runs anywhere in the plant.

There's another place in here that talks about cables and manholes that are direct buried. I assume that's in a conduit that's direct buried, not in a duct pipe. You know, and none of that is subject to any moisture, and none of that's 4160 cabling, or you know, I'm lost. This is the first application I saw where there's no medium voltage cable that's in aging management scope. This plant must be in the air someplace or something. Dry air.

MR. HEATH: I'm Mike Heath. I'm the Electrical Lead at the Robinson Plant.

MR. BARTON: Yeah.

MR. HEATH: The cable we're concerned with is 4K, the medium voltage cable that's --

MR. BARTON: Right.

MR. HEATH: -- that's subject to eddy.

MR. BARTON: Right.

MR. HEATH: And it's in scope. At Robinson, we've had no cable that's subject to eddy. There was, in fact, a follow-up question on this particular plant, and we're very unusual.

MR. BARTON: You sure are.

MR. HEATH: But it's - - most plants, in fact, are going to have that, but in our case, we don't.

MR. CLEMENTS: The safety systems are almost exclusively 481.

MR. HEATH: And our service water pump is 481.

MR. BARTON: None of your diesel cabling or any of that stuff is subject to --

MR. HEATH: Diesel cabling is 481 --

MR. BARTON: It's all 481.

MR. HEATH: It's an unusual plant.

MR. BARTON: I guess you are. Okay.

MR. SIEBER: Well, what do you know?

CHAIRMAN LEITCH: In one of your inspection reports, that there are no underground tanks.

MR. JULIAN: Right.

CHAIRMAN LEITCH: Is that correct, or is that too sweeping a statement?

MR. JULIAN: I believe that is true.

CHAIRMAN LEITCH: No underground tanks.

MR. SIEBER: That's what they say.

MR. JULIAN: The reason the titles appear like that, because a lot of times the applicants are following the GALL outline.

CHAIRMAN LEITCH: Right.

MR. JULIAN: Yeah, so we have some strange titles.

CHAIRMAN LEITCH: Yeah. So there's a section on underground tanks, and there are no underground tanks.

MR. JULIAN: This is a program about tanks, and there are no tanks.

CHAIRMAN LEITCH: Okay.

MR. BARTON: See, that's why this

applicant, though, has all tank foundations in scope, because all the tanks are above ground.

MR. SIEBER: And so their water.

CHAIRMAN LEITCH: I had one question on page 12 of the first inspection report. It talks about a pipe restraint tower, and it said the jet impingement barriers were not in scope. I don't know what I'm talking about there. I don't know what a pipe restraint tower is or what the jet impingement barrier is, but it kind of sounds suspiciously like maybe it ought to be in scope.

MR. JULIAN: I think that's a tower that runs up the side of the auxiliary building.

MR. REYNOLDS: The pipe restraint tower is the area between the containment and the turbine building structure that's separated from the feedwater and the mainstream. The pipes run through it. I'm Bob Reynolds. As far as the impingement barriers, I'd have to look at that and see. I don't recall - It's like it's not there or they're not in scope.

CHAIRMAN LEITCH: It says it's not in scope.

MR. REYNOLDS: If it's not in that area then it's not in scope.

MR. JULIAN: All right. I'm going to hold on that issue. Let me reread that, so I could get you an answer to that.

CHAIRMAN LEITCH: Yes, it's in your first inspection report on page 12 it refers to it.

MR. JULIAN: I'll look it up and get you an answer.

CHAIRMAN LEITCH: Okay. Thank you.

MR. JULIAN: That's all I have. Are there any other questions?

CHAIRMAN LEITCH: Well, I believe we are right on time for a break. And we are known to be generous and have a 15 minute break, so be back at quarter to 3.

(Whereupon, the proceedings in the above-entitled matter went off the record at 2:29:06 p.m. and went back on the record at 2:43:38 p.m.)

CHAIRMAN LEITCH: Let me just say that right before we took the break, there was a question about the jet impingement barriers not being in scope, the piping. So we just wanted to clarify that for the record.

MR. JULIAN: Right. We looked at that during the break here in the application, and we either misspoke in the report, or else we're

talking about other jet impingement barriers up there. The pipe clip restraints jet impingement barriers are clearly stated as being in scope for that pipe support tower, so that's the answer.

CHAIRMAN LEITCH: Good. Thank you.

DR. KUO: And, Mr. Leitch, let's see. Dr. Bonaca had a question on the pressurizer spray head, was it in scope or not.

CHAIRMAN LEITCH: Yes.

DR. KUO: I have Sam Miranda here. If I could, he would --

CHAIRMAN LEITCH: Please do. We have a microphone here. You just need to stand close to that.

MR. MIRANDA: At this point, the pressurizer spray --

DR. KUO: How do you spell your name, please.

MR. MIRANDA: My name is Sam Miranda. I'm from the Reactor Systems Branch. I reviewed the question of the pressurizer spray head, as to whether or not it should be in scope. And at this point, I believe it does not need to be in scope. It's pending confirmation from the applicant on some licensing from operating experience they

supplied, and this goes to an RAI.

They indicated at that time that for a thorough search of international and American operating experience, that they haven't seen any instances where the pressurizer spray head would degrade in operation.

MR. SIEBER: One of the interesting things there, though, is you put the J-tubes in scope and the steam generator, because you're worried that pieces would fly off and stick in the relief valve. And you've got the same situation in the pressurizer, and I'm not aware from operating experience of any J-tube that has failed and generated pieces. They usually fail and they get a hole in the bottom of the header. So, you know, the reasoning isn't consistent.

CHAIRMAN LEITCH: Even with that, I don't know that operating experience is particularly a criteria for eliminating equipment from scope, is it?

MR. MIRANDA: I wouldn't eliminate it by itself on the basis of operating experience. The difference between the spray head and the J-tubes, in my mind, is that we have seen instances of degradation in the feed rings of steam

generators.

MR. SIEBER: That's right.

MR. MIRANDA: And that's a precursor --

MR. SIEBER: It's not in the J-tube itself, it's in the ring.

MR. MIRANDA: It's in the ring, and in the valves.

MR. SIEBER: Because of the turbulence.

MR. MIRANDA: Yeah, it's flow-accelerated corrosion. There's also been flow-accelerated corrosion in feed lines in several of the thermal units.

DR. BONACA: But operating experience -- I mean, we have 30 years of operating experience, and these plants that go into 60 years old, and I'm trying to understand. There are ways to project, you know, expectation on equipment. And what is it that gives comfort to this case that this experience is still going to be valid 50 -- 30 years from now

MR. MIRANDA: That's a guess. And as far as -- what I was looking for, what I'm still looking for is a confirmation from the applicant, a statement that says something like there's been no such corrosion, no indications that something might

happen. Whereas we have seen things like that on the feed rings, I haven't gotten that kind of information about the spray head. I was looking for the precursor to this part.

DR. BONACA: I guess what troubles me has been the changing story from plant to plant. We've seen, I think in general this spray head is out of scope. The last plant we saw it was out of scope because the issue was that, yeah, they could fail, but they don't need it to get down to cold shutdown because even if the spray head is not in service, they can still, you know, depressurize and come down slowly but surely down there. That was one of the reasons why it's not in scope. Now we find a new reason why it's not in scope.

MR. BARTON: Is this thing too hard to look at or what?

DR. BONACA: It must be. I mean, there has to be something -- I think, if I were a spray head, I would feel so bad. I mean because --

MR BARTON: You're ignored, right.

MR.ROSEN: Can't anybody detect this other part?

MR. SIEBER: Nobody even wants to look at you.

MR. ROSEN: That's right.

MR. MIRANDA: I would also consider as to why the spray head would not be available. If there was such -- if there were a failure mechanism that you could conceive of that would cause no spray to be available, then I would be concerned.

MR. SIEBER: But that's not the case.

MR. MIRANDA: That's not the case.

MR. SIEBER: On the other hand, if the head is missing and you're putting a stream of water and no spray, you don't get much depressurization at that point, so the failure could be --

MR. STEWART: It's not in the fire code. We don't have to have a pressurizer spray to depressurize the plant. It is one method. It's not the only method.

MR. SIEBER: That's true.

DR. BONACA: It is one method. It is the primary method. It's what you're advising them to use.

MR. SIEBER: It's the method that worked.

DR. BONACA: It's the method that works, and it's the method the operator used to

use. I mean, that's the important point, too.

MR. BARTON: But if it don't work, it'll confuse him because he's used to using it.

DR. BONACA: Okay. Now I understand where the commitment is. You're expecting confirmation of operating experience that shows that degradation has not occurred.

MR. MIRANDA: Yes.

CHAIRMAN LEITCH: Okay. S.K.

MR. MITRA: Again, I am S.K. Mitra, Project Manager for Robinson Nuclear Plant. I'll start with Section 3, which is an aging management review. And GALL divides the system into six distinguished groups, the reactor system; engineering safety feature system; auxiliary system; steam and power conversion system; containment, structure and component support; and electrical and instrumentation control.

On the aging management review, the aging management program is the most important program in the aging management review, so we'll address it right on top. We have 12 common aging management programs. Common means it goes across the different systems and structures, like boric acid program, the chemistry program, and all those. And

26 system and structural group-specific AMPs, which is just in one system, the reactor system or auxiliary system, specifically for that.

Out of that we have, consistent with GALL, we have 13 verbatim consistent with GALL. We have 18 of them, some kind of deviation was taken. There's seven non-GALL programs, and --

CHAIRMAN LEITCH: S.K., I had a question right on that point. In the applicant's table, the sections that have a suffix of .1, they say that that means that it's evaluated in GALL. And .2 means different from GALL or not evaluated in GALL. And the SER on page 3-2 says that .1 means evaluated in GALL, and those that were not evaluated in GALL, but can be managed using GALL or an associated AMP. So I guess I'm confused. There seems to be a difference between the licensee's description and the SER description as to where those programs fit that are the ones that you describe as consistent with GALL, but with some deviation. Are they under the .1 section, or the .2 section?

MR. MITRA: These are the -- where they mention it in SER, that paragraph that's talking about aging management review tables that 3.X.1 of

the tables, which is either consistent with GALL or same material environment where aging affects the component, that's in the 3.X.1 table. And the 3.X.2 table is that which are not -- it's non-GALL components. But that's what I think it was -- it's nothing to do with aging management programs. The aging management programs are not described in any of the tables. This is in Appendix B.

CHAIRMAN LEITCH: Yes. I should say aging management review, not aging management program. I guess, I don't know that it makes a great deal of difference, but I would just say that it appears as though the applicant's tables under, say, 3.X.1 and 3.X.2, their definition is different than the definition that's used in the SER on page 3-2.

MR. MITRA: Okay. I will take a look at that because off-hand I don't remember the difference.

CHAIRMAN LEITCH: Sure. Okay.

MR. MITRA: I'll address that.

CHAIRMAN LEITCH: It's a fine point, but just a point of confusion. There's no problem with those that are consistent with GALL, or those that are not in GALL. They're clear enough, but

that middle category, it's a question of which table it's in. Is it .1 or .2?

MR. MITRA: Some of that -- the division that needs further clarification, that is in Table 1. And all of them that are not in GALL are in Table 2. That's my understanding. Am I right, Roger?

MR. STEWART: On the aging management programs, the Table 3.X.1, 3.X.2 has no bearing in terms of consistent with GALL here. On 3.X.1 and 3.X.2 tables, there was a specific RAI, but the Staff asked us to clarify how we determined whether a component or item was in Table 1 versus Table 2. And S.K. is correct in terms of what we basically responded there, that it's the same as GALL. It's in Table 3.X.1.

Additionally, if we had something that might be a different component, provided that component has the same material, same environment, same aging effects and we rely on the same program as GALL, we put it in 3.X.1, even though it might be a component that they didn't list in GALL.

CHAIRMAN LEITCH: Okay.

MR. STEWART: And then 3.X.2 was the stuff that's different with GALL, so you will find

some stuff in 3.X.1. It might be a different component or something that GALL didn't explicitly mention it, but we looked at it. As long as it's the same material, same environment, same aging effect, and using the same program, we put it in 3.X.1.

CHAIRMAN LEITCH: Okay. That helps.

MR. SIEBER: But that arises because you didn't do it on a system basis. You did it on plant basis. Correct?

MR. STEWART: We followed the same groupings in GALL in terms of reactor systems, ECCS. If we went through and broke down our stuff, we might find we had a different component nomenclature, say, than GALL, and that's where we would come up and identify --

MR. SIEBER: You had 19 auxiliary systems in the plant, but you didn't have 19 references in your table on a system-by-system basis.

MR. STEWART: Correct.

DR. KUO: This is the one thing actually that we will consider when we revise the GALL documents. But, you know, we heard a lot of comments on this area. You know, I've got a

component which has the same material, in the same environment --

MR. SIEBER: And why do I have to have two different programs.

DR. KUO: So this is something that we need to consider when we update the GALL.

MR. SIEBER: Yes, I think part of that is the way you think about them. Because, for example, I think in terms of systems and commodity lists, and other people think of it another way, but we all should be versatile enough to be able to accept the other person's point.

DR. KUO: Right.

MR. SIEBER: And I'm working on that.

MR. MITRA: Okay. And the last bullet said that we have AMPs that are addressed in the C.0.3 section, and there are other AMPs which are the other 26 AMPs which are good specific AMPs there with each of the systems and structures. Again, the total number of AMPs was 38, and the number of AMPs that are originally came with the license renewal application was 34. Four AMPs were added, and these are the four AMPs we listed: radiation monitoring instrumentation non-EQ cable, neutron flux instrumentation cable, fuse holders,

and bus ducts. We do that all in the electrical. Some of the RAIs, some in the SBO.

We have conducted an audit, and this is an audit done by the NRR Staff, and specifically from License Renewal group, five project managers with various experience went down and audited the AMPs that claimed to be consistent with GALL. All of them have been audited, and we compared the attributes, the ten attributes of the GALL with the ten applicant's attributes to see if they're really consistent. And we have found a couple of places that might not look like it's consistent with the GALL attribute. We talked to the plant staff - I mean the applicant's staff and some of the documents were revised as we were doing our audit. And now we found all of them are consistent, excepting one, the non-EQ insulated cable and connections program. That program lacked enough detail for us to make a conclusion whether it's consistent with GALL, so we asked the applicant to revise the program to at least have -- you know, compare them with the GALL and have all ten attributes. They did devise a program, sent it to our technical staff in NRR, and they looked at it, and they found it acceptable.

DR. KUO: This audit has been done on a 100 percent basis, so they audited all the programs that they have.

MR. MITRA: Section 3.1 had reactor systems, and in reactor systems we have the subsystems: the reactor coolant system piping, reactor coolant pumps, pressurizer, reactor vessel, reactor vessel internals, steam generators. We had nine confirmatory items on that, no open items, and we are waiting for the Staff to look at the response to the confirmatory items to accept or so they can resolve.

CHAIRMAN LEITCH: I'm sorry. I missed one two slides back, I guess --

MR. MITRA: Okay.

CHAIRMAN LEITCH: -- where you had the neutron flux instrumentation cable. There was an open item there that -- that's it. I guess the Staff was concerned about the ten-year frequency of testing. Now how has that issue been resolved? Is it still ten years?

MR. MITRA: It's ten years, and the first one would be done before the end of the extended period, and after that, each ten years.

CHAIRMAN LEITCH: So the concern about

the ten years being too infrequent went away?

DR. KUO: Amar, can you address that?

MR. PAL: Yes. It's not a concern anymore.

CHAIRMAN LEITCH: Okay. Was some of the basis for that that failure had not been experienced?

MR. PAL: Operating experience and --

MR. MITRA: Come forward, please. And, again, identify your name.

MR. PAL: Yes. Operating experience shows that they didn't have any failure. There was one bulletin published over that, and that essentially changed some of the cables part of the bulletin. And the other part, I believe neutron flux monitoring, they did not change. It was not required to change. And that cable is the same cable as the other cables, and that was in existence for over 30 years, and no failure, and no problem occurred. So based on that, we believe that aging is a slow process for cable and consistent with the other cable aging management programs.

CHAIRMAN LEITCH: Okay. So it's still in scope, still in the AMP for ten years?

MR. PAL: Yes.

CHAIRMAN LEITCH: Okay.

MR. MITRA: Any other question on this?

CHAIRMAN LEITCH: No. I'm sorry to take you back. You were a couple ahead of this.

MR. MITRA: That's okay. We went through that. And I thought we should specify the Alloy 600 Program. NRC Order EA-009-03 requires augmented inspections for Alloy 600 nozzles to upper reactor vessel head during the current licensing basis. And the Bulletin 2003-03 addresses cracking in the Alloy 600 penetration nozzles adjoined to the lower vessel head, and that is being addressed by the applicant. And the formal -- I think we didn't get the formal response to that. They will -- I think they will follow what is the bulletin has said. And as other Alloy 600 and Alloy 82/182 issues arise, staff will address them within the current operating term. And as Jim Medoff said, there is a commitment by the applicant to submit the Alloy 600 program to the Staff for review and approval by July 31, 2009, which is a year before the operating period, and the commitment would permit the Staff to review the AMP for acceptability against NRC requirements, if

any future requirement that would be, and as well as those inspection activities that Jim had mentioned on EPRI-MRP Class 1 Alloy 600-based metals, and on 82/182 weld materials.

MR. ROSEN: And this was the year before the current licensing term expires that was mentioned earlier.

MR. MITRA: Right.

DR. BONACA: The Alloy 600 would include other commitments that they try to have with Alloy 690? There would be some --

MR. SIEBER: I don't think they have any.

MR. MITRA: Jim is raising his hand. Come on up.

MR. MEDOFF: This is Jim Medoff with Materials and Chermical Engineering Branch. I've reviewed the orders. I think replacing the head does not get you out of examinations. It just -- because it's supposed to be an approved material, it just defers it out a little bit, so just the fact that you've replaced the head doesn't mean you don't have to follow the orders.

MS. COFFIN: You might have to change the title of the program.

MR. MEDOFF: Right.

DR. BONACA: I wanted to make sure the program wasn't so restrictive as just talking in this example. I mean, they'll have interim material in that time.

MR. SIEBER: Let me, since we're talking about Alloy 600, a lot of plants in this class of plants have a requirement in the tech specs for augmented inspection of the reactor vessel safe end. Is this one of those plants where safe end is an augmented inspection?

MR. BAUCOM: This is Chuck Baucom with the licensee, the applicant. We do not have such a requirement in our technical specifications. We do look at our dissimilar metal welds in accordance with various Section 11 programs.

MR. SIEBER: That's right. But usually the augmented inspection is more frequent and sometimes requires volumetrics; whereas the standard inspection is a VT, a visual.

MR. BAUCOM: I'm not aware that we're considering augmented exams at this time.

MR. SIEBER: You ought to think about that a little bit. Yes, sir.

MR. MEDOFF: This is Jim Medoff again.

For the Summer issue, since the MRP has not finalized its activities on the safe end nozzle welds, the commitment by the applicant should pick that up.

MR. SIEBER: Okay. Well, that's one example, but the issue of safe ends has been around since the 1970s.

MR. MEDOFF: Right. We haven't forgotten about the Summer issue. It's still something that we need to talk to the MRP about addressing.

MR. SIEBER: Okay. I'll sleep better tonight.(Laughter.)

MR. MITRA: In Section 3.2, we go to engineered safety features (ESF) systems, and that covers residual heat removal, safety injection, containment spray, containment air recirculation cooling, containment isolation. We don't have any open or confirmatory items on that.

And 3.3 is the auxiliary system. We have 19 auxiliary subsystems described in Section 3.3, and we have three confirmatory items, no open items.

CHAIRMAN LEITCH: Does one of those confirmatory items have to do with radioactive equipment drains, whether they're in scope or not

in scope?

MR. MITRA: Yes.

CHAIRMAN LEITCH: What was the resolution of that?

MR. MITRA: That they are not in scope, and we have a confirmatory item, but the applicant has explained, and I will have Renee Li of Staff explain why it's not in scope.

MS. LI: The system is in scope. Okay. It is a stainless steel piping exposed to raw water, and the applicant has identified loss of material due to crevice pitting and leak, but the applicant states that those aging effects on mechanisms would not impact the system function. Okay. And so we ask RAI, request applicant to elaborate why they make that conclusion. And based on their response, I think first of all, because it is the drain system, so normally it is dry. Okay. So they expect the corrosion rate due to the drain would be very insignificant. But also, the concern say if degradation would occur, then the blockage -- okay. The blockage is due to its own corrosion but, you know, they already say the corrosion rate would be very insignificant, and blockage due to external source, because they have strainer that would

prevent, you know, debris getting into it. And also, actually, this system is under -- I think Robinson has a leakage, refuse leakage program which normally that including operator wrong, assessment, walkdown and all that. And, moreover, I think I did ask them how about looking into the interaction between a partial failure of this system to the nearby safety-related system, and their answer is there is no special interaction. So based on all of this, I accept their response that no -- degradation of the system would not impact its intended function.

CHAIRMAN LEITCH: Okay. I guess I understand why there's not a degradation that would impact its function. I guess my question was why did we think it was in scope in the first place? What criteria did it --

MS. LI: Because it is still a pressure bounary, I think.

MR. STEWART: Containment penetrations.

MS. LI: Right. It is a pressure boundary.

CHAIRMAN LEITCH: I'm picturing -- maybe I don't picture what this system is exactly. I'm picturing, like, an equipment bed plate drain kind of thing. Is that what we're talking about

here?

MR. STEWART: This is Roger Stewart. That's one piece of it. Part of it -- originally it was in scope because you had containment penetration, so anything that's a containment penetration is in scope, so we had some of that.

CHAIRMAN LEITCH: Okay.

MR. STEWART: In addition, we put it in scope because when we looked at some of our flooding analysis, or particularly with fire protection, some of the flooding analysis, we rely on these drains to carry the water away and not cover up some of the switchgear stuff, so that brought portions in scope that you're thinking about in terms of the floor drains and grates and stuff.

CHAIRMAN LEITCH: Right. Okay. Good. So understanding why it's in scope, then I understand, you know, why it doesn't have a credible or a problematic aging mechanism.

MS. LI: Okay.

CHAIRMAN LEITCH: Yes. Thank you.

MR. MITRA: I lost it.

MR.ROSEN: Any questions on the material he's covered? (Laughter.)

MR. MITRA: Here we go. Section 3.4, we covered steam and power conversion systems. And there's 12 steam and power conversion systems. We don't have any open items, any confirmatory items on that.

3.5 is the containment structures, and component supports. That includes containment structure and 13 other structures. And we have one confirmatory item, no open items. And we'll show that confirmatory item. I think you are interested in that.

Inaccessible concrete. That's what you have asked, and we have our experts in the back. The below-grade soil or water aggressiveness, pH is slightly lower than the threshold of 5.5. I was asked what slightly means. It's about 5.46, so just about there. The prime indicator is inspection of intake structure, dam spillway, excavated reactor auxiliary building foundation and manholes. And periodic testing of ground water to monitor any change. And it will be done every year, once a year, testing of ground water. And commitment was given to resolve below- grade degradation issue through enhancement of the structural monitoring program and IWL.

DR. BONACA: Would you describe these enhancements of the structural monitoring program?

MR. MITRA: As I said, that they have committed to do an inspection of the dam spillway and intake structure every ten years. And any time they have excavated any of the structure, they will do the inspection. They will look for the degradation of concrete, and that's how they will enhance that. And they will be training in it to see how the degradation progresses.

SPEAKER: What's the IWL here? Is that the ASME code section?

MR. SIEBER: Yes, Section 11.

SPEAKER: "Through enhancements of IWL." What do you mean by that?

DR. KUO: Hans Asher is raising his hand. I think he's waiting to answer the question.

MR. ASHER: It's enhancement of the structure monitor program, and IWL. IWL is not being enhanced.

MR. ROSEN: I would think you would have difficulty doing that.

DR. BONACA: And for inaccessible concrete, you do have opportunistic inspections.

MR. MITRA: I didn't get the question.

DR. BONACA: For inaccessible concrete.

MR. MITRA: Yes.

DR. BONACA: You do have opportunistic inspections.

MR. MITRA: Yes.

DR. BONACA: So the same thing.

MR. ROSEN: Now that you cleared up whether you're going to enhance IWL or not, what does the reference to IWL there mean?

MR. ASHER: Let me explain. I'm Hans Asher from the Division of Engineering. Basically, IWL program by itself does not include the inspection of the below-grade portion of the containment structure. Now what the applicant did was that for containment, they announced the IWL program to include that inspection, if needed, in that program, in the early part of the announcement. For other structures, they included the below-grade structural degradation monitoring under the structural monitoring program, so that's why both things appear over here.

MR. ROSEN: So the applicant has committed to exceed the requirements of IWL.

MR. ASHER: That's correct.

MR. ROSEN: That's what that reference

is about.

MR. ASHER: That's what I would understand, yes.

MR. ROSEN: Okay.

MR. MITRA: Any other questions?

CHAIRMAN LEITCH: I suppose the dam was filled in conjunction with Unit 1, so it's older than Unit 2?

MR. MITRA: The dam was older than the units.

CHAIRMAN LEITCH: So we would then conclude that the dam might be -- the dam spillway might be a leading indicator. Is that why we're accepting that?

MR. MITRA: Yes.

MR. REYNOLDS: I just wanted to say, you mentioned the pH - Bob Reynolds,Progress Energy. He mentioned that the pH was 5.46. That's for the lake water. That's average for the lake water, and the actual groundwater is more like a little bit above 4, about 4.4, 4.35, in that range, so that was the main reason --

MR. ROSEN: So it's much more aggressive than the lake water.

MR. REYNOLDS: Yes.

MR. MITRA: And Bob had some number for sulfates and chloride. Do you want to give that?

MR. REYNOLDS: Yeah, I don't have them handy with me, but they're very minimal. It's, like, less than 20 or 30 parts per million I believe it was. It's very, very minimal for sulfates and chlorides.

DR. BONACA: And phosphate also is minimal?

MR. REYNOLDS: We actually have some test results from years ago, and it's .05 parts per million.

MR. MITRA: Any other questions? Section 3.6, Electrical and I&C. And we have three component commodity groups. This is a little different. The electricals, they have -- the aging management review was done on a commodity basis, so they have three of the commodity groups which are subject to aging management review, bus ducts, insulated cables and connections, and electrical/I&C penetration assemblies. We have three confirmatory items. There're no open items. And there are four AMPs added to following components: radiation monitoring instrumentation non-EQ cable, neutron flux instrumentation cable,

fuse holders, and bus ducts. These are not ordinarily submitted with the license renewal application. These are submitted after the RAI process has gone through, and some of them as a result of station blackout.

Now go to Section 4, TLAAs, Time-Limited Aging Analyses. And this is how it's organized in GALL and organized in application: the identification of TLAAs, reactor vessel neutron embrittlement, metal fatigue, environmental qualification, concrete containment tendon prestress, and other TLAAs that include thermal aging embrittlement, LBB orleak-before-break analysis; foundation pile corrosion; elimination of containment penetration coolers; and aging of Boraflex. And we'll go through each of them as we progress.

The reactor vessel neutron embrittlement. The tables show that pressurized thermal shock is blow their limit. The limit is 300 for circumferential welds, and RNP have 275 degree Fahrenheit. And for plates, forgings, ans axial welds, the limit is 270 degree Fahrenheit, and the RNP is 235, so it's well within the limit.

Reactor Vessel Upper Shelf Energy (USE), the table shows that it's minimum foot-pounds is 50 for

welds/forging. The RNP foot-pounds are 56. For plate materials, the equivalent margin analysis, the limit is 42. RNP has 45. Nozzle forging, the limit is 50 foot-pounds, RNP is 53, and nozzle welds minimal limit is 50, and RNP of 52.

And by the way, for both of these Staff performed their independent calculation. They looked through and made their calculation independent of the application.

MR. ROSEN: Let me congratulate you for making this easy for us.

MR. MITRA: Thank you.

MR. ROSEN: Because this slide and the previous one will save us about an hour's worth of discussion.

DR. KUO: We learned a lesson from last year.(Laughter.)

MR. ROSEN: Lesson learned.

CHAIRMAN LEITCH: At the risk of, perhaps, adding to the discussion -- it was so good -- but I guess what you're saying is the nominal limit in that plate materials would have been 50 foot-pounds also?

MR. MITRA: Yes.

CHAIRMAN LEITCH: But you used an

alternate method, I guess, this equivalent margin analysis, and I'm not sure --

MR. MITRA: Jim Medoff is raising his hand. Come on.

MR. ROSEN: That's the disadvantage of making it clear.

MR. MITRA: Yeah. (Laughter.)

MR. MEDOFF: The Upper Shelf Energy for reactor vessel plate materials is covered by 10 CFR Part 50, Appendix G. The rule requires that we have 75 foot-pounds for your materials initially without any irradiation, and then they have to maintain their values above 50 foot-pounds through the end of the life of the plant. If you don't meet that, what the rule requires you to do is use a refined analysis regarding equivalent margin analysis. And Robinson is an early vintage plant, Westinghouse plant, and for those early vintage Westinghouse designs, Westinghouse did a generic equivalent margins analysis. So what I did was I went to the safety evaluation, got the value for the plate materials in this, and then confirmed that their Upper Shelf for those materials would be above the approval --

MR. ROSEN: What safety evaluation are

you talking about, the Westinghouse?

MR. MEDOFF: No. It was our safety evaluation on the WCAP.

MR. ROSEN: Okay.

MR. MEDOFF: So I can get that for you if you want.

MS. COFFIN: Essentially, it's just a refined fracture mechanics evaluation as opposed to basing it on the Charpy tes.

MR. MITRA: Can you identify yourself, because he is going crazy.

MR. ROSEN: Tell us who you are.

MS. COFFIN: Oh, Stephanie Coffin. Sorry.

CHAIRMAN LEITCH: On a point close to that, there was a discussion about Capsule U, and it wasn't clear to me. It looked as though the record perhaps on Capsule U is unclear.

MR. MEDOFF: Well, that's not a TLAA. That's the reactor vessel surveillance aging management program, which goes into the PTS assessment, and the surveillance data goes into the PTS assessments and the upper shelf energy assessment, so there's an interrelation. But the question was actually under the management program, because we can project our neutron fluences for the

capsule based on leak factors, where they stand inside the reactor. And the licensee had actually moved that capsule, so we had some questions on how the leak factors for the capsules had changed. But they addressed all our questions on that.

CHAIRMAN LEITCH: Okay. Good. Thank you.

MR. MITRA: Section 4.3, Metal Fatigue. And auxiliary feedwater line fatigue. The 4-inch by 16-inch AFW and main feedwater connection, maybe they're fatigue critical. And it might be this Cumulative Usage Factor (CUF) equal to 1 at approximately about 50 years of operation, and that is based on projections of actual transients to date. And the applicant committed that this transient will be tracked by fatigue management program. The components will be either re-analyzed or replaced prior to exceeding cycles of transients tracked by the fatigue monitoring program. And they committed to revise the UFSAR supplement in Confirmatory Item 4.3.2-1.

Environmentally-Assisted Fatigue is projected that that will be Environmentally-Assisted Fatigue adjusted CUF more than 1 for pressurizer surge line during extended period of operation. And applicant

committed to do fatigue of surge line. It will be managed using one or more of the following options. They will refine the fatigue analysis to lower the CUF to less than one. They will repair the affected location. They may replace the affected location, or manage the fatigue by using NRC-approved augmented ISI program. And the applicant is to provide the details of this ISI program for NRC Staff to review and approve prior to the period of extended operation, if Option 4 is selected. And, again, revision of UFSAR supplement will be addressed in confirmatory item. Any questions?

CHAIRMAN LEITCH: Could you go back to that aux feedwater line?

MR. MITRA: Yes.

CHAIRMAN LEITCH: I guess, the way I read this thing, it appeared as though they had taken a shot at the number of cycles. And then they found out in reviewing this that, based on that number of cycles, this was not qualified even for 40 years. And then they went back and they came up with a cumulative usage factor of .99. And I suspect being a number like .99, the way they got that was to assume a number of cycles that gave them .99. That's for 40 years. Now we're saying

it's going to be okay for 60 years based on some other number of cycles. Is that number of cycles reasonable?

MR. MITRA: Again, Ken Chang, the reviewer for that can answer that.

DR. CHANG: My name is Ken Chang. Right now I'm in the License Renewal Branch, but six months ago I was in EMEB doing the TLAA review and a little bit of SER. This auxiliary system, auxiliary feedwater connection, for the 16 inch, there are two kind of auxiliary feedwater pump. There's steam-driven and air-driven. There's six connections. All of those are two types. One type was replaced, and the other type was trying to analyze a way out. When they analyzed the way up, they found out that there's a mistake, one mistake involving the calculation, so they decide to do a more refined calculation.

The first five was difficult, and then refined calculation qualified the 40 years, no problem. But we need 60 years. So based on the latest operating experience, extrapolate the transients which happen in the last few years for the future, between now and the renewal license, the extended operation period starts. And they can

approximately get 50 years at that time, a usage factor approaching one. So, therefore, based on the current knowledge of transient and extrapolation, it's only up to 50 years usage factor. We will get to the limit. However, the operating is getting better and better. The transient counting and the transient recording is also getting better.

The trend in the past is, the last few years the usage factor increase very slowly. And going by that trend, there may be some hope that by the time we extend operation into the end of current period, the usage factor is not that high, and you extrapolate this on that data that it's going to be better, so there is hope. Refined calculation may get you over to be less than one. And that would be acceptable; however, we cannot count on that. So the applicant agreed, for the second option, if they cannot show less than one before the extended period starts, they replace it. So to me, this is acceptable.

MR. SIEBER: And that's not a big deal either.

DR. CHANG: No, not a big deal. This is not Class 1 type.

MR. SIEBER: Right.

MR. ROSEN: So it's just a T; right? A 4-inch by 16-inch T?

DR. CHANG: Branch connection. Key would be very difficult.

MR. SIEBER: It's a reducer.

MR. ROSEN: It's a reducer.

DR. CHANG: Yes. We call it a reducing T or branch connection. Normally, the ratio is -- you know, the run to the branch exceeding 3 or 4 is a branch connection. Otherwise, it's T.

CHAIRMAN LEITCH: Is there a commitment then to replace if it goes over one? I mean, I thought maybe if it was a touch over one that --

DR. CHANG: At the end of 40 years, if they cannot demonstrate with analytical methods that the usage factor at the end of 60 years will be less than one, they replace at that point.

CHAIRMAN LEITCH: Okay.

DR. CHANG: So there's no risk involved here, if we trust the analytical tool.

CHAIRMAN LEITCH: Yes. Okay. Thank you. Good explanation.

MR. MITRA: Section 4.4, addresses environmental qualification (EQ) and applicant EQ

program consistent with GALL. Staff concluded the EQ program will continue to manage equipment in accordance with 10 CFR 50.49, and meets 10 CFR 54.21(C)(1)(iii). And we put GSI-168, "Environmental Qualification for Low-Voltage Instrumentation and Control Cable." We addressed that on Fort Calhoun, that Staff have issued RIS 2003-09 on May 2, 2003. And the issue is closed, and no actions are required on license renewal basis.

Now Concrete Containment Tendon Loss of Prestress. It's addressed in Section 4.5, and the prestress losses are estimated for 60 years, and the Staff finds the estimation is reasonable. The Staff's concerns are with the grouted tendon, which as we already discussed, is one of a kind. Tendon monitoring is not possible. But the applicant agreed to perform two tests similar to the Structural Integrity Test during the period of extended operation at Design Basis Accident Pressure. And the measurement and observation verified the behavior of the containment. Any question on that?

MR. ROSEN: What do you mean by two tests?

MR. MITRA: Similar tests like Structural Integrity Testing.

MR. ROSEN: But why two tests? Why --

MR. CLEMENTS: One now, and one at a later period of time.

MR. ROSEN: One now, you mean --

MR. CLEMENTS: Yes. Towards the end of the existing license, and one ten years into the license.

MR. ROSEN: Oh, I see.

MR. CLEMENTS: What we do is it's the same period of time as the pressurizer containment mini test that we'll do this test.

MR. STEWART: We're alternating the required Appendix J Integrated Leak Break Test to take these additional measurements and monitor the behavior for the tendons to see if --

MR. ROSEN: One before 40 years, and the other one around 50.

MR. STEWART: No, sir. These were both, the commitments, both in the period of extended operation.

MR. ROSEN: Both in that period of extended operation.

MR. STEWART: Yes, sir.

MR. ROSEN: Well, the first one is early in the period of extended operation.

MR. STEWART: Yes, sir.

MR. ROSEN: And the other one is midway?

MR. STEWART: Yes.

MR. ROSEN: That sounds appropriate.

MR. MITRA: Any other questions? Other TLAAs. We have thermal aging embrittlement and leak-before-break analysis. The applicant evaluated the validity of leak-before-break analysis of the main loop piping for the period of extended operation. The leak-before-break analysis included the effects of thermal aging on the fracture toughness properties and the critical crack size analysis for cask material. The Staff reviewed the leak-before-break analysis and found it acceptable. Foundation Pile Corrosion, addressed in 4.6.2. The applicant still -- the Robinson Nuclear Plant's steel piles are under the Category 1 structure. And applicant compared material and environment to EPRI Report, TR-103842. The conclusion from that comparison is insignificant corrosion. The RNP steel piles are in undisturbed natural soil, and they are not appreciably affected by the corrosion due to deficiency of oxygen, aa nd the same on the

groundwater also. And the Staff finds the TLAA finding is acceptable.

MR. SIEBER: I have a question on this one.

MR. MITRA: Okay.

MR. SIEBER: You have Category 1 structure supported by piling and the other structures adjacent to them are not, so one of them is solid. I think the piling goes to bedrock.

MR. REYNOLDS: Well, it does go down into something. It doesn't go in the bedrock. It goes into a clay substance, and --

MR. SIEBER: Something that's more solid than the piles.

MR. REYNOLDS: Yes.

MR. SIEBER: Well, the question has to do with the settlement of structures. You know, the ones on the piling aren't going to settle as much as the ones that aren't on pilings, and so are differential settlement and pipe stress and things like that part of your aging management in these structures?

MR. REYNOLDS: Yes. It's part of our structural monitoring program. It's one of the categories that we look at, differential settlement.

However, in this particular case, the containment variables, the type of freigh tower, fuel handling, all these are all on piles. The turbine building. So all the others are on piles. Some of the external structures are not on piles.

MR. SIEBER: For example, water treatment and things like that, where you don't have a lot of big-time commitment.

MR. REYNOLDS: Water treatment is actually part of the turbine building so it would be.

MR. SIEBER: Okay. That answers my question. Thank you.

MR. MITRA: Elimination of Containment Penetration Coolers. Applicant analyzed and found that concrete temperature around the containment penetration will remain below 200 degrees Fahrenheit. The applicant withdrew the TLAA and response of Confirmatory Item 4.6.3-1 will address the issue of how the analysis was done and why it will be always less than 200 degrees Fahrenheit.

CHAIRMAN LEITCH: I don't understand the sense of this. It's a question of understanding. At some point in time, they add containment penetration coolers and have eliminated those, taken

those out of service?

MR. MITRA: Right. Dealing with the license renewal application as a TLAA, then they analyzed that the containment will never be over 200 degrees Fahrenheit, so they withdraw that TLAA.

MR. ROSEN: This is a normal operating temperature you're talking about? What is it?

MR. MITRA: Yes.

MR. REYNOLDS: Bob Reynolds of the applicant. We had -- when we went through and did our analysis, we had one penetration that came through the RHR penetration. When we heat up and cool down during plant transients, the concrete could potentially exceed 200 degrees Fahrenheit, and 200 degrees would be the ACI limit. Basically, if you go above that, you could have -- potentially have problems with the concrete, so we looked at that for a while. And after further looking at the interval of time it takes to just heat up, and the cool-down period is like 20 hours, maybe 30 hours during certain intervals. And during that period of time, you're not at that temperature of 350 degrees long enough to ever reach 200 degrees. They found that in the calculation, initial calculation when they eliminated the coolant. It stated that in

there, so we should never reach the 200 degrees. We're not at that temperature long enough to ever go through the pipe, through the insulation, through the sleeve, etc.

MR. ROSEN: That's because you initiate RHR cooldown. It's hot, but then it cools off quickly enough to keep the penetration cool.

MR. REYNOLDS: That's correct. It's only used for a certain number of hours.

MR. ROSEN: And it's only in the very beginning of the usage that the temperature is high.

MR. REYNOLDS: That's correct.

MR. CLEMENTS: And there's not enough heat transfer here to get the concrete too hot.

MR. ROSEN: During the time when that coolant is still hot.

MR. REYNOLDS: That's correct. We initially thought that we would, based on the calculations, but we went back and found some more details.

MR. MITRA: Section 4.6.4, Aging of Boraflex. Licensee or the applicant submitted an amendment to eliminate the credit of the Boraflex panels from the Robinson Technical Specification all together. Panels are not needed to maintain the

factors for the geometry of the spent fuel rods. Staff is reviewing that amendment application. It's still being reviewed, so we have a commitment and a confirmatory item 4.6.4-1 that addressed that if the amendment is not approved or is delayed beyond November, 2003, applicant will submit an Aging of Boraflex TLAA, and the Boraflex Monitoring Program. And we will address in our safety evaluation report if it's necessary at that time, when we'll issue it the last part of January, the final SER.

MR. ROSEN: Is this because the Staff is now granting credit for soluble boron?

MR. MITRA: Yes.

MR. ROSEN: And, whereas, before they didn't? So now with the granting of the credit for soluble boron, Boraflex panels are no longer needed to contain Keff?

MR. MITRA: That's right.

DR. BONACA: What happens if you lose circulation of water coolant?

MR. CLEMENTS: It's got nothing to do with the shielding relied on by the Boraflex. I mean, the Boraflex has nothing to do with cooling.

DR. BONACA: No, I understand. I'm asking about boron precipitation.

MR. SIEBER: No precipitation but you could get a gradient of boron concentration.

MR. CLEMENTS: There's two pieces to that. One is, there's also a burn-up requirement on the fuel.

MR. MITRA: That's all I have. Any other question?

CHAIRMAN LEITCH: I had a general question as I looked through this material regarding security equipment, and whether it's in scope or not in scope. And I was trying to find a common thread here. It looked like some of the stuff was in scope, and some wasn't in scope. And I guess it seemed to me that the justification in most cases was that somehow it was related to fire protection. Is security equipment per se in scope, or is it only in scope as it relates to fire protection?

MR. HEATH: I can address that.

CHAIRMAN LEITCH: Okay.

MR. HEATH: This is Mike Heath. The security system includes security doors in the auxiliary building.

MR. ROSEN: You probably ought to come forward.

MR. MITRA: Come forward.

MR. HEATH: We brought that in fire protection because security system included the fire doors going into the auxiliary building, so it's within fire protection for those doors, and that's the only part of security we brought in.

SPEAKER: And there was also one-time mass light for operators.

MR. HEATH: We brought in high mass light. That was brought in because it was --

CHAIRMAN LEITCH: And that was something that was fire protection, as well.

MR. HEATH: Yes. Fire protection. We used it for lighting post-fire.

CHAIRMAN LEITCH: Yes.

SPEAKER: And that brought in the security.

MR. HEATH: Right.

CHAIRMAN LEITCH: But the security building, as such, is not.

MR. HEATH: The security building is for the equipment it houses associated with that light.

CHAIRMAN LEITCH: Okay.

MR. HEATH: That light brought in a lot of stuff.

CHAIRMAN LEITCH: Okay. I understand. Well, do any of the Committee Members have any

comments/questions at this point?

MR. SIEBER: I guess as a comment, I found the application of the SER easier than previous ones to review. I think the Staff and the applicant both did a pretty good job.

MR. BARTON: I would second that. This was the easiest so far.

MR. ROSEN: When we get to Farley, we'll have no RAIs to read.

MR. BARTON: That will be a piece of cake.

MR. SIEBER: One slide for the program.

DR. CHANG: Do you have a target that's useful? (Laughter.)

MR. ROSEN: Do you see how many air molecules there are.

MR.SIEBER: Yeah, you count.

DR. BONACA: I thought, too, that it was an easier application to review, and in part it's because we are more familiar with GALL. And the other thing I find is the more and more we find applications that are consistent with GALL, I tend to look at the operating experience for the plant. We can look at were there any major problems in the plant, were there any repairs that would require

unique aging management programs. And so I think that we're going in the right direction, getting more focused on plant-specific and less on the generic because of GALL.

I still am concerned about, you know, all the inspection that you're doing verifies the statement of the applicant that they are consistent with GALL is true. But at some point, there's going to be other inspections to be done before we get to the 30th year to do verification of implementation. And here today, we see more and more of those commitments now, to commit to do whatever we will come up with, with the Westinghouse program, and with the EPRI program, and so on and so forth. That's going to be a lot of work to be done by the Staff to do that kind of verification.

DR. KUO: That is true, Dr. Bonaca. And as we said before, this commitment list is part of our inspection procedure.

DR. BONACA: Sure. I understand.

DR. KUO: And, you know, we are trying to make sure that this is not going to get lost in the next 10 to 20 years. That's the biggest concern we have had so far.

MR. ROSEN: What we talked about, PT, in

the past was this bow wave of commitments, not just at Robinson, but at all the plants, all roughly contemporary, each plant knowing exactly what to do and having a good program to do it, but the Staff having to verify the implementation of those commitments effectively across the whole industry at once.

MR. SIEBER: Different commitments. Well, it won't be at once.

MR. ROSEN: Well, pretty close together.

DR. KUO: Yes.

MR. ROSEN: It'll be pretty close together, when all the plants came on line in a given period of time, and so the challenge is not going to be for the individual licensee so much, it's the Inspection Branch and the Staff. We made that comment to the Commission and to you.

DR. KUO: Yeah.

MR. ROSEN: And I know that some day you'll have a war room with all of these plants on it, and all their commitments, and you're sitting there saying what should we do now? I hope not. I hope you'll --

DR. KUO: Yes, we'll start doing that. We have informed the management that, you know,

later on by the time that we have to inspect all this commitments, either we have the resources for the Inspection Branch, or we have the resources for the region.

DR. BONACA: I think it's also big challenge for the licensee. I would like to hear from the licensee, because you have, in addition to all these things which are in scope, you also have those other items which are not in scope. And you don't want to have the plant, you know, run in the ground because you have -- for example, the pressurizer spray head, I mean, is not in scope. And, certainly, you don't want it to break and have pieces up there, and so on and so forth. So it's going to be a real challenge.

MR. SIEBER: You'll never know until you can't depressurize it.

DR. BONACA: What?

MR. SIEBER: You'll never know until you can't depressurize.

MR. BARTON: Until the operators tell you something is wrong --

MR. SIEBER: Hey, this isn't working right.

DR. BONACA: I'm being serious. I think

it's a big challenge, because this only defines a certain set of components, but you have a much broader set of components you have to worry about. And it's going to be a challenge for the whole industry.

MR. SIEBER: Well, I was always curious. This is -- I don't want an answer because it's no business of our's, but how many FTEs go into doing one of these reviews. There's a lot of reviewers and you can tell there's a lot of work. And then compare that to how many FTEs you think it's going to take to do the inspections, because I think that we're going to do a lot of review and approval first, and then the next 20 years, it'll be like the inspections in order to verify. And my guess is the inspections will take more FTEs than the review does.

DR. KUO: We hope it doesn't.

MR. SIEBER: It's far easier to read and write than it is to cramp and crawl, looking.

MR. ROSEN: Well, you're also talking about a perfect world in which nothing new turns up. And I don't live in that world.

MR. SIEBER: Yes, I can understand.

MR. ROSEN: It seems like every -- you

live in an imperfect world. We tend to have new challenges. And older plants tend to have more new challenges, perhaps, maybe. We'll see. We'll see how that turns out.

MR. BARTON: Then when you increase power by 20 percent, you induce a whole new set of challenges.

MR. ROSEN: Older plants operating at higher power.

MR. BARTON: Yes.

MR. SIEBER: Well, strangely enough, a plant like this, though, has a fair amount of margin, other than steam generators, which to my way of thinking in a 3-loop plant do not have a lot of surplus. And that's why they don't have very high output. But generally, speaking T-hot is lower so you don't have the stress on materials and the flows are low, and so my guess would be that if the plant was well maintained, it would perform well.

DR. KUO: Just to give you a preview, as a preview, that we are going to receive three unique plants. The first one on my list is Browns Ferry. They are coming in - their application will come in December. This will be three units.

MR. SIEBER: All three units?

DR. KUO: All three units.

MR. SIEBER: How about the one -- they don't even know what the one --

DR. KUO: They are doing the restart work right now.

MR. SIEBER: Yes, I know, but I doubt that they would, when they refurbish that plant, that they would make it like it was in 1980.

DR. KUO: Their commitment is to make it the same as the Units 2 and 3.

MR. ROSEN: They'll have to go out and buy all that old stuff.

DR. KUO: They're going to spend about $2 billion.

MR. ROSEN: Yes. And try to find all the old vendors for all that old stuff.

MR. SIEBER: They'll have to dig them up.

MR. ROSEN: This will be interesting to see.

DR. KUO: Yes. That will be a challenge for us, I'm sure.

CHAIRMAN LEITCH: I think we owe the applicant and the Staff some guidance as to those things that we'd like to hear at the full committee meeting.

MR. SIEBER: Yes.

CHAIRMAN LEITCH: Perhaps, the emphasis on certain points that were made here. Perhaps there are other issues. Would any of the Committee like to speak to that?

DR. BONACA: Well, just one observation, a point I made before, is that, you know, personally as I move from plant to plant, I believe we need to focus more on the unique differences of the plant's operating history. And go into, you know, areas like containment buckling in the liner. These areas we should look at. And maybe it would be worthwhile to have a brief synopsis by the applicant of some of the operating history. I mean just, you know, the relevant issues, that they have shown a plan on how to deal with some of the unique things.

CHAIRMAN LEITCH: Major equipment replacement, major repairs.

DR. BONACA: That's right. Things that would affect the way to look at some components in license renewal.

DR. CHANG: Dr. Bonaca, maybe I can say something. When we go out to -- Ken Chang, doing a few audits before. When we go out to audit AMPs for containment review, we spent an awful lot of time in

looking to the operating experience, how they address operating experience of the plant, as well as how the operating experience of the other plants in the industry affects your thinking when you are looking into your plant.

DR. BONACA: So we would like to hear from you, too.

DR. CHANG: We've started to, but it will be increased.

DR. BONACA: Because, again, I mean as we go forward, where there is compliance with GALL and there is no history that says otherwise, we're not going to look any more that thoroughly because we are familiar with those commitments.

CHAIRMAN LEITCH: Anyone else?

MR. BARTON: I don't know if you want to make sure the Committee hears what's going on in the Boric Acid Inspection Program here. You know, this is shortly after Davis-Besse. That might come up, what is their program going to be like. So that may be something the Committee wants to hear.

CHAIRMAN LEITCH: And we also heard that the Boric Acid Inspection Program had not been tied tightly to plant procedures as recent inspections shows that it was, and maybe we can hear more about

that since this is such a hot topic right now. And I think we'd like to hear -- I, for one, would like to hear the closure of this issue, the slide that's on the board right at the moment. And I'd also be curious - I don't know that it's directly related to license renewal, but I'd like to hear the disposition of this relief request for relaxation of the order for head inspection. I'd just like to know the disposition. It's in the current license basis. It's not license renewal really. I mean, they'll have a new head long before that.

DR. KUO: Okay.

MR. SIEBER: I don't know that they know they have a disposition.

CHAIRMAN LEITCH: No, they don't. But what I'm saying is when we get to the full committee meeting two or three months from now, they may know that. If they know it, I'd like to hear it.

MR. ROSEN: I have one thought about -- this is really, of course, not part of license renewal either, but what are the plant's plans for power uprate? Is that something that is known or that can be talked about, or is it -- should we just assume --

MR. SIEBER: Here at this plant? Other

than some --

MR. STEWART: We did a power uprate from the time we submitted -- we did that after we submitted, and there's no major power uprates that I'm aware of on the books for planning right now.

MR. SIEBER: You would have to change steam generators.

MR. STEWART: Roughly 5 percent power uprate in the 80s.

MR. SIEBER: That was a stretch point.

MR. STEWART: We stretched, and you're right. With the steam generators and stuff we have, there's -- we have no projects on the books right now.

MR. SIEBER: Well, your steam generators are in pretty decent shape. Unless you really need the power, it wouldn't be worth the money.

CHAIRMAN LEITCH: I think one of the things, too, I'm always interested in when we get to the Full Committee Meeting is just how you're going to track these commitments. In other words, you touched on it today, but I'd like to hear a little more about it. I mean, when the license renewal group goes away, who owns this program? You talked -- if I remember the numbers, some of these programs

were going to be implemented within what you called the short period. But there are perhaps 30 of them or 25 of them that are not going to be implemented in the short period. Just some plans. I mean, we recognize that you don't have to do it until the end of the current period, but we'd just like to know what your thinking is, what your plans are, how is this going to be implemented? How are these commitments going to be tracked internally in your organization. Because you guys, the plant renewal, license renewal team are going to go away or move on to big and better things. But somebody is going to have to continue this. So I think at the full committee meeting we'd like to just hear a little more about that topic. I mean, you touched on it today, but it's just a matter of re-emphasis. Anything else?

Well, I think we can declare success at maintaining the schedule. We did have to squeeze a couple of people there a little bit, and we apologize for that, but we were able to come in on schedule. I want to thank the applicant and the Staff.

As the other members have mentioned, I think the presentations were excellent, and I think

the application was well-prepared and easy to review, to the credit of everyone that was involved with the process. So thanks very much, and we stand adjourned. Thank you.

(Whereupon, the proceedings in the above-entitled matter went off the record at 4:03 p.m.)

## CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission in the matter of:

Name of Proceeding: Advisory Committee on Reactor Safeguards Plant License Renewal Subcommittee

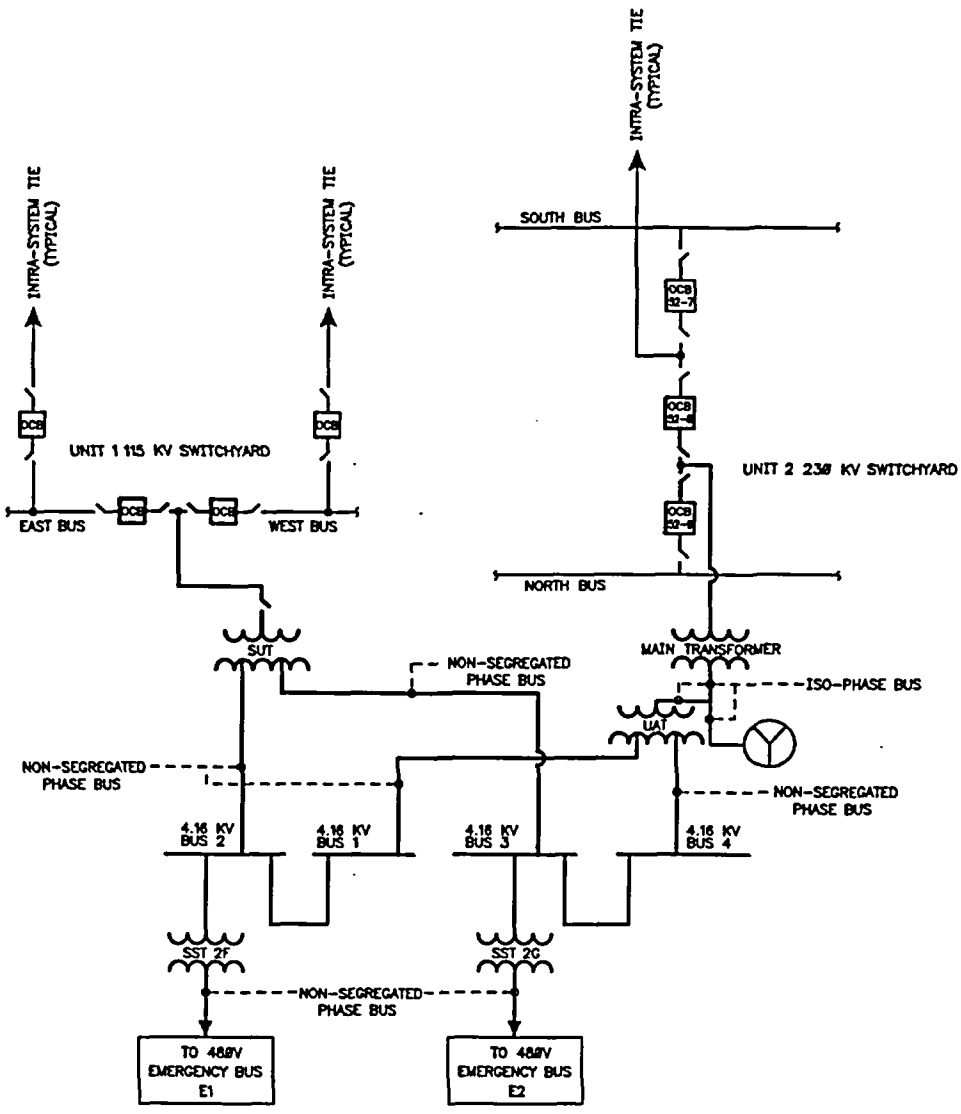
Docket Number: n/a

Location: Rockville, MD

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and, thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.

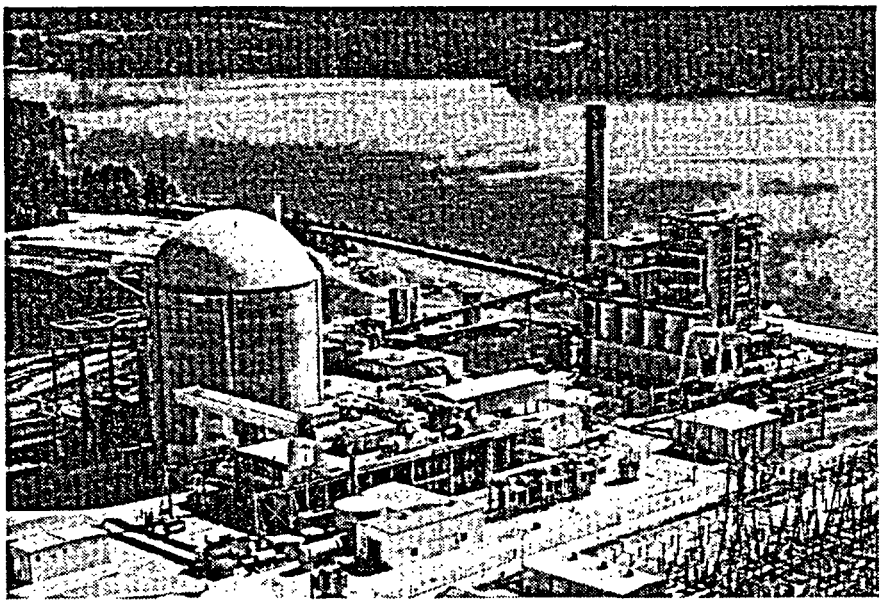
Eric Hendrixson
Official Reporter
Neal R. Gross & Co., Inc.

# RNP–SBO Offsite Power Recovery




RED = First Source of Offsite Power

BLUE = Second Source of Offsite Power



# ROBINSON NUCLEAR PLANT

## Progress Energy
## Presentation to ACRS
## Roger Stewart
## September 30, 2003

Progress Energy

## CONTENTS

- Background
  - Unit 1/Unit 2 Shared Resources
- Operating experience
  - RV Head Penetrations
- Scoping and Screening Methodologies/ Exceptions to GALL
- Commitments/Tracking

Progress Energy

## Background - RNP

- Initial License granted July 31, 1970
- Westinghouse 3 loop 2339 MWT PWR
  - "Sister" plant to Turkey Point
  - All NRC Performance Indicators Green
  - All NRC Inspection Findings Green

Progress Energy

## Unit 1/Unit 2 Shared Resources In Scope Systems/Structures

- Lake
  - Common Lake, Dam, Spillway
  - Separate Intake Structures
- Fuel Oil
  - Unit 1 credited for additional capacity
- Fire Water Systems
  - Systems are cross connected but separated by closed isolation valves

Progress Energy

## Unit 1/Unit 2 Shared Resources Non-LR Scope Systems/Structures

- Hydrogen Supply
- Sewage Treatment
- Telephone and PA Systems
- Training Buildings
- Warehouse
- Waste Oil Disposal Facility
- Railway
- Access Road

Progress Energy

## Operating Experience

| | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|
| Capacity | 95.01 | 103.96 | 92.18 | 93.70 | (9/22) 103.32<br>(proj.) 103.39 |
| Refuel | 9/24 to 10/24 | | 4/7 to 5/12 | 10/12 to 11/14 | |

Breaker to Breaker operation between spring 2001 and fall 2002 refueling. Other offline, minimal:

- 1/8/99 to 1/10/99 Maintenance Outage to repair WD-1728
- 6/21/00 to 6/22/00 Manual Trip due to Turbine EH oil leak
- 11/24/02 Turbine taken offline to repair steam leak

Progress Energy

## RV Head Penetrations - Upper

- RO-20 Inspection
  - "Bare Head" Inspection performed as the result of evidence of leakage (CRDM canopy seal weld)
  - No VHP nozzle or RCS pressure boundary leakage detected
  - Inspection performed prior to issuance of NRC Bulletin
- Analyses confirmed leakage paths exist such that visual examination would detect leakage
  - Westinghouse Analyses
  - FEA performed by Dominion Engineering and Structural Integrity Associates
  - Design and manufacturing information
- RO-21 Inspection – No indication or degradation identified that required repair
- Replacement Head Ordered for RO-23 (Fall 2005)

Progress Energy

## RV Head Penetrations - Lower

- RNP Plans RO-22 (Spring 2004) Inspection
  - Remote bare metal visual
- Developing Contingency Plans
  - Identification of sources
  - NDE and repair

Progress Energy

## Scoping and Screening Methodologies/ Exceptions to GALL

- IPA/TLAA technical work performed in accordance with Progress Energy Quality Assurance Program (Appendix B)
- LRA prepared following guidance of NEI 95-10 in SRP format
- Supplement provided to address ISGs
- Unique Aspects-
  - Grouted Tendons
  - Dedicated Shutdown Diesel
- No Major Exceptions to GALL

Progress Energy

## Commitments/Tracking

- 10 Existing Programs Credited with no changes required
- 37 Commitments for 27 Enhancements and 10 New Programs
- All Commitments have been entered into RNP Commitment Tracking Program
- 18 of the Commitments are anticipated to be accomplished "near-term"
- 19 of the Commitments are anticipated to be "transitioned"
  - Transition Plan in place

Progress Energy

## Commitments/Tracking

- Once Implemented
  - Commitments are identified in implementing documents
  - Change controlled by 10 CFR 50.59 process
- Configuration control process will incorporate guidance to ensure that requirements of 10 CFR 54.37(b) are met; Support by
  - License Renewal Training
  - License Renewal Design Basis Document
  - UFSAR Supplement

Progress Energy

# H.B. ROBINSON STEAM ELECTRIC PLANT, UNIT 2

License Renewal SER
with Open Items

Staff Presentation to the ACRS
SIKHINDRA (S.K.) MITRA
Project Manager
September 30, 2003

## Overview

- APPLICATION SUBMITTED BY LETTER DATED JUNE 14, 2002
- WESTINGHOUSE PRESSURIZED WATER REACTOR, THREE LOOP CLOSED CYCLE, GENERATE 2339 MEGAWATT THERMAL, AND 769 MEGAWATT ELECTRICAL, 1 UNIT
- PLANT LOCATED ON MANMADE LAKE ROBINSON IN DARLINGTON COUNTY, SOUTH CAROLINA.

## Overview (continued)

- CURRENT LICENSE EXPIRES JULY 31, 2010
- REQUEST LICENSE RENEWAL THROUGH JULY 31, 2030
- APPLICATION IMPLEMENTED THE GENERIC AGING LESSONS LEARNED (GALL) PROCESS



## NRC Review Process

- 2 OPEN ITEMS (RESOLVED)
- 29 CONFIRMATORY ITEMS
- BROUGHT INTO SCOPE AND SUBJECTED TO AMR
  - 5 NEW STRUCTURES
  - 159 NEW COMPONENTS
- 4 NEW AMPs

# NRC Audits and Inspections

- SCOPING AND SCREENING METHODOLOGY AUDIT
  - SEPTEMBER 17 - 20, 2002
- SCOPING AND SCREENING INSPECTION
  - MARCH 31 – APRIL 4, 2003
- AGING MANAGEMENT PROGRAM AUDIT
  - MAY 28 – 29, 2003
- AGING MANAGEMENT REVIEW INSPECTION
  - JUNE 9 – 14 and JUNE 23 -27, 2003
- FINAL INSPECTION
  - SEPTEMBER 9 – 10, 2003



# Section 2 – Structures and Components Subject to an Aging Management Review

- 2.1 - SCOPING AND SCREENING METHODOLOGY
- DESCRIBES METHODOLOGY USED TO IDENTIFY SSCs THAT ARE WITHIN THE SCOPE OF THE LICENSE RENEWAL RULE AND SUBJECT TO AN AMR

## Section 2.1 – Scoping and Screening Methodology (Continued)

- STAFF CONDUCTED METHODOLOGY AUDIT
- PURPOSE OF AUDIT WAS TO VERIFY THAT THE SCOPING AND SCREENING METHODOLOGY WAS CONSISTENT WITH THE REQUIREMENTS OF THE RULE
- AUDIT TEAM FOUND THAT THE APPLICANT'S METHODOLOGY SATISFIES THE RULE



## Section 2.2 – Plant Level Scoping Results

- STAFF REVIEWED SECTION 2.2 TO DETERMINE IF ANY STRUCTURES OR COMPONENTS SUPPOSED TO BE WITHIN SCOPE WERE OMITTED
- SEVERAL STRUCTURES AND COMPONENTS INITIALLY OMITTED FROM SCOPE THAT MET SCOPING CRITERION 54.4(a)(2)

## Section 2.3 Scoping and Screening of Mechanical Systems

- INCLUDES:
  - REACTOR SYSTEMS (7)
  - ENGINEERED SAFETY FEATURES SYSTEMS (5)
  - AUXILIARY SYSTEMS (19)
  - STEAM POWER CONVERSION SYSTEMS (12)



## Section 2.3 Scoping and Screening of Mechanical Systems (Continued)

- SSCs WERE INITIALLY OMITTED FROM SCOPE. THESE SSCs MET SCOPING CRITERION 54.4(a)(2)
  - STEAM GENERATOR FEEDRINGS
  - DEEPWELL PUMPS, AND ASSOCIATED PIPING
  - HYDROGEN RECOMBINERS
  - SPENT FUEL POOL MAKEUP PATH FROM RWST
- THESE SYSTEMS WERE BROUGHT INTO SCOPE, ALONG WITH ASSOCIATED AGING MANAGEMENT INFORMATION

## Open Items

- Open Item 2.3.1.6-1
  - STAFF IDENTIFIED THAT DEGRADATION OF THE FEEDRINGS, J-NOZZLES, OR J-NOZZLE WELDS COULD PRODUCE LOOSE PARTS INSIDE THE STEAM GENERATOR SHELL
    - MAY DAMAGE SAFETY-RELATED COMPONENTS, ESPECIALLY DURING TRANSIENTS
  - COMPONENTS BROUGHT INTO SCOPE AND OPEN ITEM IS RESOLVED



## Open Items (continued)

- Open Item 2.3.3.8-1
  - FOLLOWING A LAKE ROBINSON DAM FAILURE AND DEPLETION OF CONDENSATE STORAGE TANK INVENTORY FAILURE OF DEEPWELL PUMPS WOULD CAUSE FAILURE OF THE SAFETY RELATED AUXILIARY FEEDWATER SYSTEM AND PREVENT THE RESIDUAL HEAT REMOVAL NECESSARY TO MAINTAIN A SAFE SHUTDOWN CONDITION
  - THREE DEEPWELL PUMPS, ASSOCIATED PIPING, AND VALVES WERE BROUGHT INTO SCOPE AND OPEN ITEM IS RESOLVED.

# Confirmatory Items

- Confirmatory Item 2.3.2.5-1
  - STAFF IDENTIFIED HYDROGEN CONTROL HAS AN INTENDED FUNCTION FOR THE POST- ACCIDENT HYDROGEN SYSTEM, AND HYDROGEN RECOMBINERS PREVENT THE ACCUMULATION OF COMBUSTIBLE CONCENTRATION OF HYDROGEN WITHIN THE CONTAINMENT BUILDING.
  - HYDROGEN RECOMBINERS AND ASSOCIATED PIPING WERE BROUGHT INTO SCOPE



# Confirmatory Items (continued)

- Confirmatory Item 2.3.3.9-1
  - FAILURE OF MAKEUP SUPPLY FROM REFUELING WATER STORAGE TANK (RWST) COULD CAUSE FAILURE OF SPENT FUEL COOLING DUE TO INADEQUATE COOLANT INVENTORY
  - SPENT FUEL POOL (SFP) MAKEUP WATER PATH AND ASSOCIATED COMPONENTS FROM RWST TO SFP WAS BROUGHT INTO SCOPE

## SECTION 2.4 STRUCTURES AND STRUCTURAL COMPONENTS

- DESCRIBES STRUCTURES AND STRUCTURAL COMPONENTS
  - CONTAINMENT
  - OTHER STRUCTURES (13)
- NO OPEN OR CONFIRMATORY ITEMS



## SECTION 2.5 - ELECTRICAL SYSTEMS, INSTRUMENTATION, & CONTROL SYSTEMS

- SSC WERE INITIALLY OMITTED FROM SCOPE
  - FUSE HOLDERS
  - STATION BLACKOUT COMPONENTS, SUCH AS:
    - GENERATOR ISOLATED PHASE (ISO-PHASE) BUS DUCT
    - NON SEGREGATED 4.16-kV & 480 V BUS DUCTS
    - HIGH-VOLTAGE INSULATORS

## SCOPING AND SCREENING SUMMARY

- THE APPLICANT'S METHODOLOGY MEETS THE REQUIREMENTS OF THE RULE.
- SCOPING AND SCREENING RESULTS INCLUDED ALL SSCs WITHIN THE SCOPE OF LICENSE RENEWAL AND SUBJECT TO AN AMR.



## LICENSE RENEWAL INSPECTIONS

- HIGHLIGHTS:
  - SCOPING AND SCREENING INSPECTION
  - AMR INSPECTION
  - FINAL INSPECTION
  - COMMITMENT TRACKING
  - PLANT ROP

## License Renewal Inspection Program Implementation

- LICENSE RENEWAL MANUAL CHAPTER - MC 2516
- LICENSE RENEWAL INSPECTION PROCEDURE - IP 71002
- SITE-SPECIFIC INSPECTION PLAN FOR EACH APPLICANT
- SCHEDULED TO SUPPORT NRR's REVIEW
- RESOURCES-CONSISTENT TEAM OF THE SAME FIVE INSPECTORS
- TRAINING PROGRAM FOR REPLACEMENT TEAM MEMBERS



## License Renewal Inspections

- *SCOPING AND SCREENING INSPECTION*
- OBJECTIVE: TO CONFIRM THAT THE APPLICANT HAS INCLUDED ALL APPROPRIATE SSCs IN THE SCOPE OF LICENSE RENEWAL AS REQUIRED BY THE RULE.
- ONE WEEK IN LENGTH
- CONDUCTED MARCH 31 – APRIL 4, 2003 AT ROBINSON SITE
- CONCLUDED THAT SCOPING AND SCREENING PROCESS WAS SUCCESSFUL IN IDENTIFYING THOSE SSCs NEEDING AGING MANAGEMENT REVIEW

## *SCOPING & SCREENING INSPECTION (Continued)*

- QUESTIONED WHY UNIT 1 AND 2 FUEL OIL TRANSFER PIPING AND DEEP WELL BACKUP WATER SUPPLY FOR AUXILIARY FEEDWATER SYSTEM WERE NOT IN SCOPE
- THREE EXAMPLES OF INSCONSISTENCY BETWEEN THE APPLICATION, BOUNDARY DRAWINGS AND CALCULATIONS
- CALCULATION DESCRIBING HANDLING OF NON-SAFETY RELATED PIPING IN VICINITY OF SAFETY RELATED WAS UNCLEAR
- SUBSEQUENT INSPECTION FOLLOWUP FOUND THESE ISSSUES HAD BEEN CORRECTED



## AGING MANAGEMENT INSPECTION

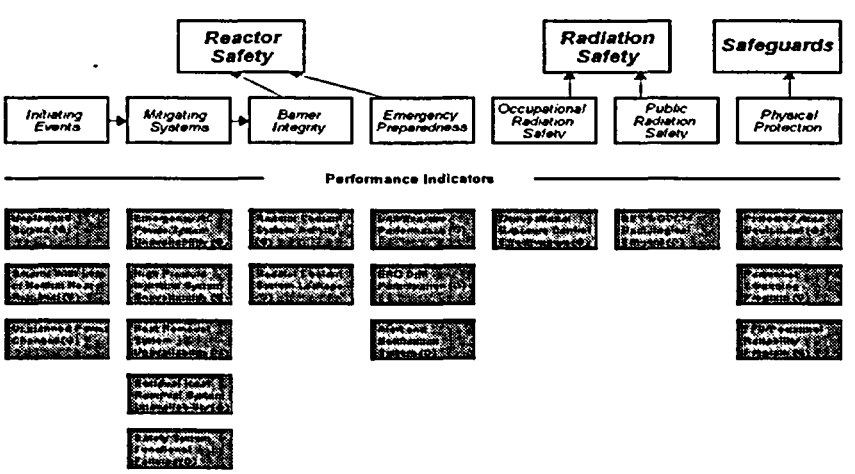
- OBJECTIVE: TO CONFIRM THAT EXISTING AMPs ARE WORKING WELL AND TO EXAMINE THE APPLICANT's PLANS FOR ESTABLISHING NEW AMPs AND ENHANCING EXISTING AMPs
- TWO WEEKS IN LENGTH
- CONDUCTED JUNE 9–27, 2003
- INCOMPLETE INTEGRATION OF FUTURE TASKS INTO ESTABLISHED SITE ACTION REQUEST TRACKING SYSTEM
- MATERIAL CONDITION OF PLANT WAS BEING ADEQUATELY MAINTAINED AND HAS IMPROVED OVER TIME.
- DOCUMENTATION WAS OF GOOD QUALITY.

# AGING MANAGEMENT INSPECTION
(Continued)

- THIRD (OPTIONAL) INSPECTION
- CONDUCTED SEPTEMBER 9-10, 2003
- APPLICANT HAD LOADED FUTURE TASKS INTO ESTABLISHED SITE ACTION REQUEST TRACKING SYSTEM
- TRANSITION PLAN FOR COMPLETION OF LICENSE RENEWAL PROJECT WAS ESTABLISHED



# RNP
## 2Q/2003 PERFORMANCE SUMMARY




Last Modified July 22, 2003

## SECTION 3 - AGING MANAGEMENT REVIEW

- GALL DIVIDES SYSTEMS AND STRUCTURES INTO 6 BROAD SYSTEM/STRUCTURAL GROUPS
  - REACTOR SYSTEMS (3.1)
  - ENGINEERED SAFETY FEATURES SYSTEMS (3.2)
  - AUXILIARY SYSTEMS (3.3)
  - STEAM AMD POWER CONVERSION SYSTEMS (3.4)
  - CONTAINMENTS, STRUCTURES AND COMPONENT SUPPORTS (3.5)
  - ELECTRICAL AND INSTRUMENTATION AND CONTROLS (3.6)



## AGING MANAGEMENT PROGRAMS

- 12 COMMON AGING MANAGEMENT PROGRAMS (AMPs)
- 26 SYSTEM/STRUCTURAL GROUP-SPECIFIC AMPs
  - CONSISTENT WITH GALL: 13
  - CONSISTENT WITH GALL, BUT WITH SOME DEVIATION: 18
  - NON-GALL: 7
  - STAFF EVALUATION RESULTS OF COMMON AMPs DOCUMENTED IN SER SECTION 3.0.3, SYSTEM SPECIFIC AMPs IN EACH SYSTEM/STRUCTURE GROUP

# RNP AMPs STATISTICS

- TOTAL NUMBER OF AMPs: 38
- NUMBER OF AMPs ARE REFERENCED IN THE LRA: 34, NOW: 38
- FOUR AMPS ADDED FOR FOLLOWING COMPONENTS
  - RADIATION MONITORING INSTRUMENTATION NON-EQ CABLE
  - NEUTRON FLUX INSTRUMENTATION CABLE
  - FUSE HOLDERS
  - BUS DUCTS



# RNP AMPs AUDIT

- DATE OF AUDIT - MAY 28-29, 2003
- AUDITORS - 5 PROJECT MANAGERS FROM LICENSE RENEWAL
- AUDITED ALL THE ATTRIBUTES OF THE AMPs CLAIMED TO BE CONSISTENT WITH GALL
- CONCLUDED AMPs WERE CONSISTENT WITH GALL EXCEPTING:
  - NON-EQ INSULATED CABLES AND CONNECTIONS PROGRAM LACKED DETAIL TO CONCLUDE CONSISTENCY WITH GALL
  - AMP WAS REVISED AND RESUBMITTED TO TECHNICAL STAFF FOR REVIEW
  - STAFF FOUND IT ACCEPTABLE

## SECTION 3.1 - REACTOR SYSTEMS

- REACTOR COOLANT SYSTEM PIPING
- REACTOR COOLANT PUMPS
- PRESSURIZER
- REACTOR VESSEL
- REACTOR VESSEL INTERNALS
- STEAM GENERATORS

- NINE CONFIRMATORY ITEMS
- NO OPEN ITEMS



## ALLOY 600 PROGRAM

- NRC ORDER EA-009-03 REQUIRES AUGMENTED INSPECTIONS OF ALLOY 600 NOZZLES TO UPPER REACTOR VESSEL HEAD DURING CLB
- NRC BULLETIN 2003-03 ADDRESSES CRACKING IN THE ALLOY 600 PENETRATION NOZZLES ADJOINED TO THE LOWER VESSEL HEAD
- AS OTHER ALLOY 600 OR ALLOY 82/182 ISSUES ARISE, STAFF WILL ADDRESS THEM WITHIN THE CURRENT OPERATING TERM

## ALLOY 600 PROGRAM (Continued)

- COMMITMENT BY THE APPLICANT TO SUBMIT THE ALLOY 600 PROGRAM TO THE STAFF FOR REVIEW AND APPROVAL BY JULY 31, 2009
- THE COMMITMENT WILL PERMIT THE STAFF TO REVIEW THE AMP FOR ACCEPTABILITY AGAINST NRC REQUIREMENTS AS WELL AS THOSE INSPECTION ACTIVITIES RECOMMENDED BY THE EPRI-MRP FOR CLASS 1 ALLOY 600 BASE METALS AND ALLOY 82/182 WELD MATERIALS



## SECTION 3.2 - ENGINEERED SAFETY FEATURES (ESF) SYSTEMS

- RESIDUAL HEAT REMOVAL
- SAFETY INJECTION
- CONTAINMENT SPRAY
- CONTAINMENT AIR RECIRCULATION COOLING
- CONTAINMENT ISOLATION

- NO OPEN OR CONFIRMATORY ITEMS

## SECTION 3.3 - AUXILIARY SYSTEMS

- 19 AUXILIARY SYSTEMS
- THREE CONFIRMATORY ITEMS
- NO OPEN ITEMS



## SECTION 3.4 - STEAM AND POWER CONVERSION SYSTEMS

- 12 STEAM AND POWER CONVERSION SYSTEMS
- NO OPEN ITEMS
- NO CONFIRMATORY ITEMS

## SECTION 3.5 - CONTAINMENT, STRUCTURES, AND COMPONENT SUPPORTS

- CONTAINMENT STRUCTURE
- 13 OTHER STRUCTURES
- ONE CONFIRMATORY ITEM
- NO OPEN ITEMS



## AGING MANAGEMENT OF IN-SCOPE INACCESSIBLE CONCRETE

- BELOW GRADE SOIL/WATER-AGGRESSIVE, pH SLIGHTLY LOWER THAN THE THRESHOLD OF 5.5
- PRIME INDICATORS: INSPECTION OF INTAKE STRUCTURE, DAM SPILLWAY, EXCAVATED RAB FOUNDATION, MANHOLES
- PERIODIC TESTING OF GROUNDWATER TO MONITOR CHANGES
- COMMITMENT TO RESOLVE BELOW GRADE DEGRADATION ISSUES THROUGH ENHANCEMENTS OF SMP AND IWL

## SECTION 3.6 - ELECTRICAL AND I&C

- 3 COMPONENT COMMODITY GROUPS SUBJECT TO AN AMR
  - BUS DUCTS
  - INSULATED CABLES AND CONNECTIONS
  - ELECTRICAL/I&C PENETRATIONS ASSEMBLIES
- THREE CONFIRMATORY ITEMS
- NO OPEN ITEMS
- FOUR AMPs ADDED FOR THE FOLLOWING COMPONENTS:
  - RADIATION MONITORING INSTRUMENTATION NON-EQ CABLE
  - NEUTRON FLUX INSTRUMENTATION CABLE
  - FUSE HOLDERS
  - BUS DUCTS



## SECTION 4 - TIME-LIMITED AGING ANALYSES

- 4.1 - IDENTIFICATION OF TLAAs
- 4.2 - REACTOR VESSEL NEUTRON EMBRITTLEMENT
- 4.3 - METAL FATIGUE
- 4.4 - ENVIRONMENTAL QUALIFICATION
- 4.5 - CONCRETE CONTAINMENT TENDON PRESTRESS
- 4.6 - OTHER TLAAs
  - 4.6.1 - THERMAL AGING EMBRITTLEMENT, LBB ANALYSIS
  - 4.6.2 - FOUNDATION PILE CORROSION
  - 4.6.3 - ELIMINATION OF CONTAINMENT PENETRATION COOLERS
  - 4.6.4 - AGING OF BORAFLEX

## SECTION 4.2 - REACTOR VESSEL NEUTRON EMBRITTLEMENT

- Analysis of PTS projected to end of PEO
- Staff performed independent calculations

| ITEMS | LIMIT (° F) | RNP (°F) |
|---|---|---|
| CIRCUMFERENTIAL WELDS | 300 | 275 |
| PLATES/FORGINGS/AXIAL WELDS | 270 | 235 |

PTS = Pressurized Thermal Shock



## REACTOR VESSEL UPPER SHELF ENERGY (USE)

- ANALYSIS OF USE PROJECTED AT THE END OF PEO
- STAFF PERFORMED INDEPENDENT CALCULATION

| REACTOR VESSEL UPPER SHELF ENERGY (USE) | LIMIT (MINIMUM) FT-LBS | RNP FT-LBS |
|---|---|---|
| WELDS/FORGINGS | 50 | 56 |
| PLATE MATERIALS | 42 (EMA) | 45 |
| NOZZLE FORGING | 50 | 53 |
| NOZZLE WELDS | 50 | 52 |

EMA = Equivalent Margin Analysis

# SECTION 4.3 METAL FATIGUE

## AUXILIARY FEEDWATER (AFW) LINE FATIGUE:

- 4"X16" AFW AND MAIN FW CONNECTIONS ARE FATIGUE CRITICAL
- CUF=1.0 AT ~ 50 YEARS (BASED ON PROJECTIONS OF ACTUAL TRANSIENTS TO DATE)

CUF = Cumulative Usage Factor



# AUXILIARY FEEDWATER (AFW) LINE FATIGUE (Continued):

- COMMITMENT
  - TRANSIENTS WILL BE TRACKED BY FMP
  - COMPONENTS WILL BE EITHER RE-ANALYZED OR REPLACED PRIOR TO EXCEEDING CYCLES OF TRANSIENTS TRACKED BY FMP
  - REVISION OF UFSAR SUPPLEMENT IS CONFIRMATORY ITEM 4.3.2-1

## ENVIRONMENTALLY-ASSISTED FATIGUE (EAF)

- PROJECTED EAF-ADJUSTED CUF>1.0 FOR PZR SURGE LINE DURING EXTENDED PERIOD OF OPERATION
- COMMITMENT:
  - FATIGUE OF SURGE LINE WILL BE MANAGED USING ONE OR MORE OF THE FOLLOWING OPTIONS:
    1. REFINE FATIGUE ANALYSIS TO LOWER CUF TO LESS THAN ONE
    2. REPAIR AFFECTED LOCATIONS
    3. REPLACE AFFECTED LOCATIONS
    4. MANAGE FATIGUE BY USING NRC APPROVED AUGMENTED ISI PROGRAM



## ENVIRONMENTALLY-ASSISTED FATIGUE (EAF) (Continued)

- THE APPLICANT IS TO PROVIDE DETAILS OF THE ISI PROGRAM FOR NRC STAFF'S REVIEW AND APPROVAL PRIOR TO THE PERIOD OF EXTENDED OPERATION, IF OPTION 4 IS SELECTED
- REVISION OF THE UFSAR SUPPLEMENT IS CONFIRMATORY ITEM 4.3.2-2

## SECTION 4.4 - ENVIRONMENTAL QUALIFICATION

- APPLICANT'S EQ PROGRAM CONSISTENT WITH GALL
- STAFF CONCLUDED EQ PROGRAM WILL CONTINUE TO MANAGE EQUIPMENT IN ACCORDANCE WITH 10 CFR 50.49, AND MEETS 10 CFR 54.21(C)(1)(iii)
- GSI-168, "ENVIRONMENTAL QUALIFICATION OF LOW-VOLTAGE INSTRUMENTATION AND CONTROL CABLES"
  - STAFF ISSUED RIS 2003-09, ON MAY 2, 2003
  - ISSUE IS CLOSED
  - NO ACTION IS REQUIRED



## SECTION 4.5 - CONCRETE CONTAINMENT TENDON LOSS OF PRESTRESS

- PRESTRESS LOSSES ESTIMATED FOR 60 YEARS
- STAFF FINDS ESTIMATION REASONABLE
- STAFF CONCERN – GROUTED TENDONS – TENDON MONITORING NOT POSSIBLE
- APPLICANT AGREED TO PERFORM TWO TESTS SIMILAR TO STRUCTURAL INTEGRITY TESTING (SIT) DURING PEO AT DESIGN BASIS ACCIDENT PRESSURE (DBA)
- MEASUREMENTS AND OBSERVATIONS – VERIFY GROSS BEHAVIOR OF CONTAINMENT

## 4.6 - OTHER TLAAs

SECTION 4.6.1 - THERMAL AGING EMBRITTLEMENT AND LEAK BEFORE BREAK

- THE APPLICANT EVALUATED THE VALIDITY OF THE LEAK-BEFORE-BREAK (LBB) ANALYSIS OF THE MAIN LOOP PIPING FOR THE PERIOD OF EXTENDED OPERATION
- LBB ANALYSIS INCLUDED THE EFFECTS OF THERMAL AGING ON THE FRACTURE TOUGHNESS PROPERTIES AND CRITICAL CRACK SIZE ANALYZED FOR CASS MATERIALS
- THE STAFF REVIEWED THE LBB ANALYSIS AND FOUND IT ACCEPTABLE



## SECTION 4.6.2 FOUNDATION PILE CORROSION

- RNP STEEL PILES ARE UNDER THE CATEGORY 1 STRUCTURES
- APPLICANT COMPARED MATERIAL AND ENVIRONMENT TO EPRI REPORT, TR-103842
  - CONCLUSION: CORROSION INSIGNIFICANT
- RNP STEEL PILES ARE IN UNDISTURBED NATURAL SOIL, AND THEY ARE NOT APPRECIABLY AFFECTED BY CORROSION DUE TO THE DEFICIENCY OF OXYGEN.
- STAFF FINDS THE TLAA FINDING ACCEPTABLE

## SECTION 4.6.3 - ELIMINATION OF CONTAINMENT PENETRATION COOLERS

- CONCRETE TEMPERATURE AROUND CONTAINMENT PENETRATION REMAIN BELOW 200°F.
- APPLICANT WITHDREW THE TLAA AND RESPONSE OF CONFIRMATORY ITEM 4.6.3-1 WILL ADDRESS THE ISSUE



## SECTION 4.6.4 - AGING OF BORAFLEX

- LICENSE AMENDMENT WAS SUBMITTED TO ELIMINATE CREDIT OF THE BORAFLEX PANELS FROM RNP TECHNICAL SPECIFICATIONS
- PANELS ARE NOT NEEDED TO MAINTAIN Keff FOR THE GEOMETRY OF THE SPENT FUEL RODS
- STAFF IS REVIEWING THE AMENDMENT APPLICATION
- CONFIRMATORY ITEM 4.6.4-1 ADDRESSED, IF THE AMENDMENT IS NOT APPROVED OR IS DELAYED FOR APPROVAL BEYOND NOVEMBER 2003, APPLICANT WILL SUBMIT AGING OF BORAFLEX TLAA AND BORAFLEX MONITORING PROGRAM
- REVIEW OF PROGRAM WILL BE INCLUDED IN FINAL SER, IF NECESSARY