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NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

(ACRS)

PLANT LICENSE RENEWAL SUBCOMMITTEE

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WEDNESDAY,

DECEMBER 1, 2004

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ROCKVILLE, MARYLAND

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The Subcommittee met at the Nuclear Regulatory Commission, Two White Flint North, Room T2B3, 11545 Rockville Pike, at 1:30 p.m., Mario V. Bonaca, Chairman, presiding.

COMMITTEE MEMBERS PRESENT:

MARIO V. BONACA	Chairman
RICHARD S. DENNING	Member
F. PETER FORD	Member
GRAHAM M. LEITCH	Consultant
VICTOR H. RANSOM	Member
WILLIAM J. SHACK	Member
JOHN D. SIEBER	Member
GRAHAM B. WALLIS	Member

ACRS STAFF PRESENT:

CAYATANO SANTOS

OTHER NRC STAFF PRESENT:

GREGORY V. CRANSTON	NRR
GREGORY F. SUBER	NRR
P.T. KUO	NRR
SAMPSON LEE	NRR
JIM MEDOFF	NRR
REBECCA NEASE	Region IV

ALSO PRESENT:

REZA AHRABLI	Entergy
ALAN COX	Entergy
DAVID J. LACH	Entergy
MATTHEW MILLER	AREVA
MARK RINCKEL	AREVA
ROGER RUCKER	Entergy
MIKE STROUD	Entergy
GARRY G. YOUNG	Entergy

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

1:30 p.m.

CHAIRMAN BONACA: Good afternoon. The meeting will now come to order. This is a meeting of the Plant License Removal Subcommittee. I'm Mario Bonaca, Chairman of the Plant License Renewal Subcommittee. ACRS Members in attendance are Peter Ford, Vic Ransom, Steve Rosen, Jack Sieber and our ACRS Consultant, Graham Leitch, is also present. I believe we will have other Members coming in at a later time. Mr. Cayatano Santos of the ACRS Staff is a designated federal official for this meeting.

The purpose of this meeting is to discuss the license renewal application for Arkansas Nuclear One - Unit 2. We will hear presentations from the NRC's Office of Nuclear Reactor Regulation and representatives of Entergy Operations. The subcommittees will gather information, analyze relevant issues and facts and formulate proposed positions and actions as appropriate for deliberation by the full Committee.

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. We have received no written comments or

requests for time to make oral statements from members of the public regarding today's meeting.

A transcript of the meeting is being kept and it will be made available as stated in the Federal Register notice. Therefore, we request that participants in this meeting use the microphones located throughout the meeting room when addressing the Subcommittee. Participants should first identify themselves and speak with sufficient clarity and volume so that they may be readily heard.

We will now proceed with the meeting and I'll call upon Mr. Kuo of the Office of Nuclear Reactor Regulations to begin. Mr. Kuo?

DR. KUO: Thank you, Dr. Bonaca. Good afternoon. For the record, I'm P.T. Kuo, the program director for the License Renewal and Environmental Impacts Program. To my right, Dr. Sampson Lee, who is the second chief project management, and to my extreme right Greg Cranston, who is the second chief for the section who is responsible for GALL development and audit review.

The staff has completed the safety evaluation of Arkansas Nuclear One - Unit 2, license renewal application, and Greg Suber, the project manager for the application, will lead a presentation

today with the assistance from our support, from the tech staff who are sitting in the audience. And he will also be assisted by Juan Ayala, who is sitting in the front there, who is our new addition in the branch.

In addition, Greg Cranston, who is also the team leader for the audit review at the site, will provide the Committee a few examples of their audit findings. And I also would like to note that Arkansas Nuclear, this is difficult, One - Unit 2 is the second of a three part program that implemented the audit review process.

We have also invited Rebecca Nease sitting right there who is the Inspection Team Leader at Region IV and Rebecca used to be also in the License Renewal Branch. Welcome back and thank you for your assistance today. With that, if there's no questions, I would like to turn the presentation over to Entergy and then followed by the staff's presentation.

MR. LEITCH: P.T., I had just one question about the methodology. This methodology was the same as that used for Farley?

DR. KUO: Correct.

MR. LEITCH: But I noticed in the scoping and screening inspection that the Farley scoping and

screening inspection was after this one. This predated the Farley inspection. Was there any significance to that or was that just a scheduling issue?

DR. KUO: It's simply a scheduling problem.

MR. LEITCH: Okay. Okay. But the same methodology was used?

DR. KUO: The same methodology, the same approach.

MR. LEITCH: Okay. Okay. Thank you.

DR. KUO: You're welcome.

MR. YOUNG: Okay. I'm Garry Young with Entergy Nuclear and I will make the presentation on the first section where we talk about the application that was submitted for Arkansas Nuclear One - Unit 2, but first I would like to introduce some of the members of the team that worked on this application.

Over here we have got Alan Cox, who was our technical lead, Mike Stroud, who is our project manager for the Unit 2 Project. Ted Ivy is our mechanical lead. Reza Ahrabli is our structural lead. Roger Rucker is our electrical lead and then Dave Lach, who is also one of our project managers, Mark Rinckel with AREVA who worked on the TLAA and Class I,

and Matt Miller with AREVA who also worked on the Class I and TLAA.

So we hope we have brought enough people to answer your questions, and as we go through here, obviously, feel free to stop us at any time if you have got a question and we'll try to provide an answer.

Okay. The first, this is the outline for the presentation and we'll just go through each one of these and talk about a little additional information on the background for the application, a little bit of a description on the Unit 2 as compared to Unit 1, some operating history, a little bit of discussion on scoping, the application of GALL and then our commitment handling process.

Okay. On the background, we submitted our application October 15, 2003. Our original, our current license expiration date for Unit 2 is July of 2018. With a renewal, this would extend the operation term to 2038. In addition to using the GALL document to compare our programs, our Aging Management Programs, we also did a Past Precedents Review as part of this pilot effort to find additional matches between previously approved information that was not in the 2001 version of GALL, and this was evaluated by

the NRC during the audit process.

So as P.T. mentioned earlier, we were part of that, the three units that were involved in this pilot use of the new audit process and in the effort to identify past precedent information in addition to what has already been provided in the 2001 version of GALL.

Let's see. I'll get this right in a minute here. This is a description of Arkansas Nuclear One - Unit 2. It's a combustion engineering pressurized water reactor. It has a dry, ambient containment building. Bechtel was the architect/ engineer. The initial operation started in 1978. It's a 3026 megawatts thermal reactor with 1023 megawatts electric output.

Some of the differences between Unit 1 and Unit 2, as you can see from the photograph here, we have a cooling tower. That's the Unit 2 cooling tower. Unit 1 uses once-through cooling and Unit 1 is a Babcock and Wilcox nuclear steam supply system, whereas Unit 2 is a combustion engineering unit.

MR. LEITCH: Perhaps when you're on that picture, when that photograph is there, you could point out a little bit the ultimate heat sink. Is that --

MR. YOUNG: Yes, the ultimate heat sink.

MR. LEITCH: -- referred to as a pond or something?

MR. YOUNG: There is a pond back behind these buildings. It's really not evident in the picture.

MR. LEITCH: Okay.

MR. YOUNG: Yes, this is some really just drainage water here. This is not part of the emergency cooling pond.

MR. LEITCH: Okay.

MR. YOUNG: But we have got the intake structure. The intake canal comes in here, goes through the plant and this is the discharge for Unit 1. But then, of course, in Unit 2 we have the cooling tower.

MR. LEITCH: Yes, yes.

MR. YOUNG: That gets make-up from that.

MR. LEITCH: But there is a pond or ultimate heat sink --

MR. YOUNG: Yes.

MR. LEITCH: -- capacity behind the reactors in that picture?

MR. YOUNG: Yes, it's behind the buildings there, behind the reactor buildings.

MR. ROSEN: Which of the units is the one we're talking about here?

MR. YOUNG: This is Unit 2.

MR. ROSEN: The one on the right.

MR. YOUNG: Yes, this is Unit 1 and this Unit 2.

DR. WALLIS: How many hundred feet high is that cooling tower, 500?

MR. YOUNG: 450.

DR. KUO: 450.

MR. YOUNG: Around 450. The unit is located in Arkansas in Pope County in the southwest part of the country and, in general, this is in the northwest part of Arkansas. Okay.

A little bit on the operating history. We did a power uprate on Unit 2, a 7.5 percent power uprate in 2002. This increased the capacity by the 210 megawatts thermal. The steam generators have also been replaced in 2000. These were Westinghouse steam generators that were installed. That is just kind of a brief overview of some of the major changes that have occurred in recent times to operate.

CHAIRMAN BONACA: The steam generators were identical replacements of the original ones?

MR. YOUNG: They are the same design.

CHAIRMAN BONACA: Same design.

MR. YOUNG: But they were designed for the higher power rating and with the improved materials.

CHAIRMAN BONACA: Yes.

MR. ROSEN: What materials are those for the tubes?

MR. YOUNG: Pardon me?

MR. ROSEN: What is the tubing material?

MR. YOUNG: 690.

MR. ROSEN: 690.

MR. YOUNG: Yes, Inconel 690.

MR. LEITCH: So the head has not been replaced on this unit?

MR. YOUNG: Not yet, no. We do have long range plans to replace the reactor vessel head, probably in the next two to three years, in that time frame.

CHAIRMAN BONACA: Is this susceptible? What is the susceptibility of this plant?

MR. YOUNG: It's in the high susceptibility range.

CHAIRMAN BONACA: High?

MR. YOUNG: Yes.

CHAIRMAN BONACA: Because of high temperature?

MR. YOUNG: I believe so. Yes, it's high temperature, yes.

CHAIRMAN BONACA: Okay.

MR. ROSEN: Do you have an equipment hatch big enough to --

MR. YOUNG: I believe, at this time, they have determined it's probably not big enough, so they will probably have to cut out some concrete to replace the head, but I think that's part of the ongoing studies. Okay. Any other questions on that?

Okay. We'll move on to the scoping method. We used pretty much the standard scoping methodology that has been used by a number of applicants, following the 95-10 guidance, as well as the Standard Review Plan, (a)(2), of course, was one of those areas where there has been a lot of evolution as far as the understanding of what's included.

We did include a large number of additional systems under (a)(2) using the latest methodology information. It was more of a spaces approach. In other words, if there was a room that contained safety-related equipment and there were some non-safety-related systems, we just assumed that it was all in scope and then kind of worked from there to do our Aging Management Review. And, of course, we

did our screening in accordance with the 54.21(a)(1), which again is the typical approach that's used with most of the applicants using 95-10 guidance, (NEI) 95-10.

MR. LEITCH: There are a number of shared systems for this plant. I noted that there were a number of Unit 1 systems that were scoped with Unit 2.

MR. YOUNG: Yes.

MR. LEITCH: I assume that back when we were doing license renewal for Unit 1, there was a number of Unit 2 systems that were --

MR. YOUNG: Yes.

MR. LEITCH: -- scoped along with Unit 1's. I guess what I'm picturing is there may be some shared systems that are actually scoped with both units.

MR. YOUNG: Yes.

MR. LEITCH: Is that correct?

MR. YOUNG: Yes.

MR. LEITCH: Okay. Did that present any complications? I think it's a little new for us.

MR. YOUNG: Right.

MR. LEITCH: I mean, I think usually when we have done --

MR. YOUNG: Yes.

MR. LEITCH: -- two unit plants, we have done them all at once.

MR. YOUNG: Right.

MR. LEITCH: And I think this is just a little --

MR. YOUNG: Yes.

MR. LEITCH: I think this may be the first case where we have --

MR. YOUNG: I think it is.

MR. LEITCH: -- reviewed one unit at a two unit plant.

MR. YOUNG: Right. Yes. But for the most part, the Aging Management Programs we credited for Unit 1, we also credited for Unit 2. So the program itself, in general, it's the same program. Now, the difference is though that, obviously, Unit 2 is a newer unit and so it, with a renewed license, would operate for four years longer than Unit 1.

So that's why we had to do our review to include some of these systems on Unit 2 that were common, because if, for example, we were to shut down Unit 1 early, we would still have to have these Aging Management Programs for Unit 2.

MR. LEITCH: Okay. Okay. That was really the essence of my question.

MR. YOUNG: Okay.

MR. ROSEN: Do you have stand alone engineering support staff for each unit or is it one merged group?

MR. YOUNG: One merged group, yes. Generally, the separation between the units is in the operations area, but maintenance and engineering and so forth is pretty well a shared resource. Okay?

The GALL comparison. Of course, we focused our review on those Aging Management Programs and other information to GALL to see what was consistent and what was not. There were some material/environment/program combinations that were not addressed in GALL. And again, this is the 2001 version. But we did do a Past Precedents Review on those to see if some of that had already been reviewed and approved in a recent application prior to the Unit 2 application. We do have some plant-specific programs that we used, you know, as needed. Again, this is very similar to our Unit 1 application.

Now, we provided the past precedent information as a separate submittal. It was not part of the application, but that was primarily because it was part of this pilot activity and, at that time, we weren't sure how to incorporate past precedent

actually into an application, but it was submitted separately.

And a lot of the past precedent information that we identified during this review we provided to the NRC staff as input to the revision to GALL, and we have already seen in the draft version of GALL that has just come out in September of this year that a lot of this past precedent that we took credit for is now being factored into the new version of GALL. So in the future, we wouldn't have to have so many places where we don't match at all with the new version.

MR. LEITCH: Now, you also considered a number of ISGs, Interim Staff Guidances, in your application?

MR. YOUNG: Yes.

MR. LEITCH: All those up until the point that your application was submitted?

MR. YOUNG: Right.

MR. LEITCH: I guess it was maybe up to number 10 or something like that.

MR. YOUNG: Yes, I can't remember the number, but we had a section in the application where we identified the ISGs that we approved, at that time, and then we dealt with some of the more recent ISGs

through the RAI process.

MR. LEITCH: Yes.

MR. YOUNG: You know, that either came out or there was additional discussion after the application was submitted.

MR. LEITCH: Okay.

MR. YOUNG: Okay. In the comparison with GALL, this is for our Aging Management Programs, we had 33 total Aging Management Programs identified in our application. 15 of those programs we identified as being consistent with GALL or consistent with GALL after we implemented some enhancements.

A couple of examples of the programs that we found that were consistent with GALL were the Containment Leak Rate Testing Program or the Appendix J Testing and the EQ Program. An example of a program in which we needed to do enhancements was our Boric Acid Corrosion Program. It was consistent with GALL, except it didn't explicitly include electrical equipment and we add that. We're adding that to the program, so that it will be consistent with GALL.

We had seven programs that were consistent with exceptions to GALL. For example, our Buried Piping Inspection Program was consistent with GALL. However, we added the groupings of buried valves and

buried bolting to the program that was not covered in GALL, so that was an exception.

We had 11 programs that were not consistent with GALL and, therefore, plant-specific programs. However, 8 of those 11 were programs that had been previously reviewed and approved by the staff. They just weren't in GALL, and so we used the Past Precedents Review to do that comparison.

An example of that would be our Heat Exchanger Monitoring Program, which was a plant-specific program not in GALL, but it was the same as the Unit 1 program, which had already been reviewed and approved and we point to that in our application.

MR. LEITCH: You mentioned buried piping. I noticed some verbiage in the application that said that the buried components will be inspected only opportunistically and not at a scheduled frequency as GALL appears to require.

MR. YOUNG: Yes.

MR. LEITCH: And I guess that position was, apparently, accepted by the staff. Maybe this was more of a question for the staff, but if GALL recommends a scheduled frequency for inspection, why was an opportunistic inspection acceptable?

MR. YOUNG: Yes, I guess there's two

points there. One is that the program that we credited for Unit 2 was the same as the program that had already been reviewed and approved for Unit 1, the opportunistic inspections. But number two is that we found from operating experience that we tend to have reasons to dig up piping on a frequency of about once every 5 to 10 years due to various reasons and, as a result, we're getting a fair amount of exposure of, you know, ability to do the inspection.

The focus of the Aging Management Review was to make sure that the coating is in intact on the buried piping, and by using opportunistic inspections means that we have a less chance of damaging that coating. But if we were to dig it up solely for inspection, we would actually increase the likelihood of an aging effect, rather than reducing the likelihood.

But historically, we have found that the frequency is, you know, on average about every 5 to 10 years there is some reason that we have to dig up some piping and, at that point, expose the coating and can do an inspection to make sure it's not degrading.

MR. LEITCH: Yes. And I guess the real question I have, and maybe this will come up later, is if GALL recommends this scheduled frequency and we're

finding an opportunistic inspection to be acceptable, are we going to change GALL?

In other words, if digging up the piping at ANO is more likely to damage the coating, isn't it more likely to damage the coating at any plant where you would dig up the piping? I mean, is this really the right thing to do or should we be thinking about changing GALL or maybe that's part of the GALL modifications that are in the works. I'm not sure.

DR. KUO: Dr. Leitch, the staff will address your question when they come.

MR. LEITCH: Okay. Sure. Thank you.

MR. ROSEN: Now, would you also address what happens if there is no opportunity for inspection?

DR. KUO: Okay.

CHAIRMAN BONACA: I have a question since we're here on the buried piping inspection. You also include tank inspections in that program and you took an exception on tanks, that you're able to perform --

MR. YOUNG: Yes, we don't have any buried tanks.

CHAIRMAN BONACA: Oh, wait a minute.

MR. YOUNG: That's why we took the exception.

CHAIRMAN BONACA: Okay.

MR. YOUNG: Because the problem implies or assumes that you have buried tanks and we didn't have any.

CHAIRMAN BONACA: Okay. That was the reason why you said that you are not going to inspect the tanks. Okay.

MR. YOUNG: Yes.

CHAIRMAN BONACA: All right.

MR. SIEBER: And diesel fuel tanks are above ground?

MR. YOUNG: Above ground, yes.

MR. SIEBER: And you inspect all --

MR. YOUNG: Or in vaults. We have some that are in vaults, yes, below.

MR. SIEBER: Okay. Now, when you do a piping inspection by digging it up, you're inspecting the outside surface.

MR. YOUNG: Yes.

MR. SIEBER: Do you do anything to inspect the inside surface where a lot of the corrosion takes place?

MR. YOUNG: On the inside, we're crediting our existing programs, such as our chemistry programs, depending on what the pipe is, if it's a fuel oil pipe

or whatever.

MR. SIEBER: Service water.

MR. YOUNG: Service water? Yes, then we rely on our chemistry programs for the internal aging management.

MR. SIEBER: Yes, but you don't treat that. It's river water or lake water or something like that.

MR. YOUNG: Right. But we haven't had any aging effects that would require anything beyond what we're currently doing.

MR. SIEBER: No leaks?

MR. YOUNG: Well --

MR. COX: Internals are covered by the Service Water Integrity Program, which includes some chemical treatment, intake and also inspections.

MR. YOUNG: Tell them who you are, Alan.

COURT REPORTER: And use the mike.

MR. YOUNG: Yes.

MR. COX: This is Alan Cox with Entergy. Again, the service water, the inside of the pipe, the service water is covered by the Service Water Integrity Program, which includes a limited amount of chemical treatment in addition to inspections.

MR. SIEBER: Okay. Do you have galvanic

corrosion protection installed on all this underground piping?

MR. YOUNG: We do, but we don't take credit for it. It's not part of our Aging Management Program. We found it's not reliable enough.

MR. SIEBER: Okay.

MR. LEITCH: I read that the groundwater at this site is not aggressive, but I was unable to find specific data, other than just the fact that it, you know, meets the criteria for being non-aggressive. But do you happen to know what the data is for the groundwater?

MR. YOUNG: Yes, we have the data, but we assumed that it was aggressive. We had that discussion with the staff that historical data shows it's non-aggressive, you know, based on the 25 years of operating experience so far.

MR. LEITCH: Right.

MR. YOUNG: But then the question came up about well, how do we know it's going to stay non-aggressive? So rather that deal with that, we just assumed that it is aggressive.

MR. LEITCH: Oh, I see.

MR. YOUNG: And we have aging management on the concrete and the structures as if it were

aggressive, and then that way we don't really have to worry about --

MR. LEITCH: Okay. Thank you.

MR. YOUNG: -- you know, monitoring of the groundwater.

MR. LEITCH: Yes.

MR. YOUNG: Okay. There was one additional program that we added after the application was submitted for a one-time inspection, and this came out during the NRC review process, and this was to confirm the Chemistry Program effectiveness. So this was an additional program to the 33 that we had identified in our application. And again, most of these programs that we're talking about here are common between Unit 1 and Unit 2.

MR. LEITCH: Is that the same as the Buried Piping Inspection Program, the one-time?

MR. YOUNG: No.

MR. LEITCH: Because it says in the application that the Buried Piping Inspection Program is a new program.

MR. YOUNG: Yes, it's a new program, but it was identified in the application, so it's one of the 33.

MR. LEITCH: Oh, okay. I understand.

MR. YOUNG: Yes, right. But this one is in addition to the 33.

MR. LEITCH: Okay. Got you. Right. Thank you.

MR. YOUNG: Okay. Okay. And then moving on to commitment tracking. You know, one of the things that comes out of all of this review is a number of commitments to existing programs, to enhance programs and to new programs. These are all documented in our application and they have been revised as needed during the RAI questioning and the audit process, and each time we have had an additional change or clarification to a commitment, we have captured that.

We track all of this in our Licensing Commitment Tracking System and we have a little flow chart here to show that all of our commitments are documented in either the application or the letters in which we have responded to questions on the application. These commitments then go into our commitment tracking system, and then they will be maintained, you know, as part of the plant current documentation.

They also, of course, feed into the Safety Evaluation Report. Any commitment we make will be

documented there, and then they are subject to the audit inspections and to the regional inspections, and I think there has already been some discussion about how that's going to be handled in the future during the regional inspections of our commitments, but this is kind of a big picture view of how we track and manage our Aging Management Program commitments. Okay.

MR. LEITCH: Many of these Aging Management Programs, and you're not alone in this regard, they commit to implementing these programs prior to the period of extended operation.

MR. YOUNG: Right.

MR. LEITCH: And one of our concerns is always that commitment would allow one to wait until year 39 and a half and then implement all these programs, and we're concerned about the bow wave of activity that that would create at that period of time.

Are you planning to phase in these programs? I guess a number of them are already in place.

MR. YOUNG: Right.

MR. LEITCH: But those that are new, are you planning to phase those in in a reasonable period

of time rather than just waiting until the end?

MR. YOUNG: Yes, at least at this time our plan is that most, if not all, of them would be in place by at least two years prior to the 40 year term, but many of them will be implemented or phased in, you know, as the opportunity comes up.

You know, for example, a lot of these are related to preventive maintenance activities and if there is an opportunity between now and, you know, the extended term to go ahead and implement those, because a lot of them are enhancements, they are not actually changes to the existing preventive maintenance, they are additional documentation to ensure that that existing activity continues.

So you know, if we're doing an inspection in a tank now, today, but we're going to add in some detail about looking for signs of corrosion or cracking or whatever to clarify, you know, that would be what we consider an enhancement. So we could go ahead and implement that, you know, fairly quickly and, in some cases, we probably will, but it's going to be pretty much on a case by case basis as we go through. And then intent is not to wait until, you know, year 40 and then do them all at once. Now, there are some, I think, that we have to wait, because

we're waiting on industry data.

MR. LEITCH: Industry positions, yes.

MR. YOUNG: Like MRP and so forth.

MR. LEITCH: Yes, right.

MR. YOUNG: So those will have to wait until this new industry information is available, but as soon as it's available, then we can start working on the program.

MR. LEITCH: Yes, I understand that.

MR. ROSEN: Well, I think your answer --

MR. LEITCH: I think the next concern is just not only, I mean, obviously, the impact on your staff.

MR. YOUNG: Right.

MR. LEITCH: But also the impact on NRC inspection staff. This all hits us at the same time.

MR. YOUNG: Yes.

MR. LEITCH: It's going to be --

MR. YOUNG: Oh, yes, right.

MR. LEITCH: -- a difficult chore to handle.

MR. YOUNG: Yes, I agree.

MR. ROSEN: Your answer is reasonable, but it leaves me a little bit uncomfortable about the ad hoc nature of the incorporation. You clearly said you

wouldn't go beyond 2016 without having all the programs in place, but up until then from now, say 2005 until then, for 11 years you're kind of going to do it when it strikes your fancy.

MR. YOUNG: Yes.

MR. ROSEN: And that seems like not a way I'm used to Entergy running the business. You usually have a plan for doing things and go ahead and do it on those dates.

MR. YOUNG: Yes. The reason I can't give you anything more definitive, at this time, is we were waiting until we knew what all the programs were, you know, through this review process. And once we got all that worked out, in other words, by the time we get the renewed license, we'll have all of these commitments will be well-defined.

And then, at that point, we can go in and start doing our planning and scheduling to get all this into our procedures. So we will have -- at the point of getting the renewed license, that's when we'll start developing the more detailed implementation plan and then start the process of doing the implementation.

At this point in time, we don't have that plan, primarily, because we knew that there would be

some changes and additions and clarifications that came out of the NRC review process, such as this new one-time Inspection Program that we hadn't originally planned on.

MR. ROSEN: Okay. So sometime after the license is issued.

MR. YOUNG: Right, once we --

MR. ROSEN: Should that occur, then there will be some sort of structured plan put in place?

MR. YOUNG: Right. And each one of these commitments that we have identified for each one of these programs is assigned to an owner, you know, the Chemistry Department or the Maintenance Department or whatever. So we will have to coordinate with each one of those departments to come up with a schedule for actually implementing.

MR. ROSEN: But it's your plan to do that, rather than just to let it happen?

MR. YOUNG: Oh, yes, yes.

MR. ROSEN: Because letting things like that happen have --

MR. YOUNG: Oh, no, no, right. Yes, once we have a well --

MR. ROSEN: -- not a very high percentage.

MR. YOUNG: Right. Once we have a well

defined scope of what is needed to be done, then we can work on the schedule and the implementation. Okay.

And just in closing, we found this new Audit Team approach that was used in this pilot to be very thorough and rigorous. It also allowed us to speed up the process of answering questions from the staff, because they were sitting right there across the table from us as they were doing their review.

We had a much better understanding of what the question was, and then if the answer to the question led to another question, we could deal with it right then instead of, you know, passing letters back and forth, which normally take several weeks just to get a letter out.

So we really feel like this was an improvement. It did create a lot of extra effort on the front end of the 22 month period. In other words, in the first three or four months we were very intense with these on-site audits and working with the audit teams. But in the end, we felt like it was worth it and it definitely improved the process.

We think the Past Precedent Review was successful and, as I mentioned earlier, a lot of this information has been passed on to the revision to GALL

and much of that work that we did on past precedent has actually been used to help make the revision to the draft GALL.

So all of this, this pilot effort and the Audit Team approach, we felt like was an improvement, and I understand that is going to be continued in the future and we think that's a good thing.

MR. LEITCH: Could you say just another word about the Past Precedent Review? I think that's pretty significant, and I'm not sure I quite understand what you did.

MR. YOUNG: Okay.

MR. LEITCH: You looked at previous license renewal applications?

MR. YOUNG: Yes.

MR. LEITCH: Could you just explain what you did then?

MR. YOUNG: For example, we had a number of these programs that when we did our review in comparison to GALL, we either found that we had exceptions to GALL or that they weren't in GALL. They were plant-specific. However, the exceptions and the programs that were in GALL had already been reviewed and approved on another application. And in many cases, that other application was Unit 1, Arkansas

Nuclear One - Unit 1.

MR. LEITCH: Yes.

MR. YOUNG: So we provided that information in this Past Precedent Review to the staff, so that they could at least look at it and be aware of that this was a program that had the same attributes as one that they had already reviewed and approved.

Now, in some cases there were reasons that that didn't really match up well enough for them to use it, but in most cases it did, so that would facilitate their review and especially for the Audit Team. When they came on-site, they could look at a program that didn't match GALL, but it matched a program that had already been reviewed and approved either at Arkansas Nuclear One - Unit 1 or at another site like Ginna or North Anna or Surry or whatever.

So we searched SERs to find matches with past precedent and we looked at our Unit 1 application approval.

MR. LEITCH: Yes. I guess the thing that I still wonder about, just to pick this buried piping as an example, I guess this again is a question that, hopefully, the staff will discuss. In other words, at Arkansas Nuclear One - Unit 1, rather than a scheduled

frequency, the opportunistic position was accepted.

MR. YOUNG: Right.

MR. LEITCH: Now, then you come along with Unit 2 and the reason the opportunistic position is accepted on Unit 2 is because it was accepted on Unit 1. In other words, is that the kind of precedent we're talking about here?

MR. YOUNG: Well --

MR. LEITCH: And I guess, I mean, I think the staff is going to get into this issue a little later.

MR. YOUNG: Right.

MR. LEITCH: But my question is is it really okay, we accepted it once. Therefore, it's cast in concrete and we have to accept it again or do we really still think that's the right thing to do?

DR. KUO: In this particular case, it's very much on a case by case basis.

MR. LEITCH: Yes.

DR. KUO: And the staff will address this.

MR. LEITCH: We'll talk about that.

DR. KUO: Right.

MR. LEITCH: It's just another facet in life.

DR. KUO: And also, your staff's

presentation who will give the Committee an example where the applicant claimed a certain program is past the precedent and we reviewed it and we decided we disagree.

MR. LEITCH: Okay.

DR. KUO: Okay. So you will see the example.

MR. LEITCH: Okay. That's good.

CHAIRMAN BONACA: I have a question on the O-rings that seal the head. They are not in the scope. I didn't understand why.

MR. YOUNG: Well, they are in scope, but they are not subject to aging management, because they are short-lived components. They are replaced.

CHAIRMAN BONACA: Could you replace them?

MR. YOUNG: Yes.

CHAIRMAN BONACA: Because those -- okay. I was thinking, I mean, first of all, you inspect them at every refueling outage.

MR. YOUNG: Yes.

CHAIRMAN BONACA: Okay.

MR. YOUNG: Yes.

CHAIRMAN BONACA: So that's the reason?

MR. YOUNG: Yes.

CHAIRMAN BONACA: Well, in the discussion

it didn't sound that way. It sounded like we're relying -- I mean, there is a limited amount of flow that you may --

MR. YOUNG: Yes, that was for the leak-off tube.

CHAIRMAN BONACA: Okay.

MR. YOUNG: From the head, but not the O-rings themselves.

CHAIRMAN BONACA: Okay.

MR. YOUNG: Not the -- yes, the O-rings.

CHAIRMAN BONACA: The O-rings they are in scope, but they are replaced. I mean, they are not in scope as in aging management, because you are replacing them periodically as needed.

MR. YOUNG: Right. Yes, yes.

CHAIRMAN BONACA: Okay. Regarding the reactor vessel head penetration you said that they were inspected, I believe, in 2002, and did you find there a leakage there?

MR. YOUNG: I don't believe we did, no, not in 2002, no.

CHAIRMAN BONACA: And that's the last time you have inspected the head?

MR. YOUNG: Yes, I believe. Okay. Yes, that was the last refueling outage.

CHAIRMAN BONACA: Okay. All right.

MR. ROSEN: Do you have full access to it?

MR. YOUNG: Pardon me?

MR. ROSEN: Are there limitations on that result? In other words, you went and looked every place you could, but you didn't have full access or can you say something more about how?

MR. YOUNG: Well, we did the bare metal inspection that was, you know, required by the bulletin or letter. I forget what it was now.

MR. ROSEN: 360 degrees around all the penetrations.

MR. YOUNG: Right.

MR. ROSEN: So it's --

MR. YOUNG: Yes, that's my understanding is we followed all the guidance. Now, Mark Rinckel with AREVA can give more detail on that.

MR. RINCKEL: This is Mark Rinckel with AREVA, formerly Framatome ANP, and a long time ago Babcock and Wilcox. They couldn't do a 360 bare metal on all of the locations, because some of them are covered by a shroud. And in that case, they did some alternate low frequency eddy current tests and they also did some UT to look in those locations where they couldn't look at the bare metal inspections. And

those methods were approved by the staff. So they did do bare metal where they could. There are some locations that they couldn't and they used the alternate technique.

MR. ROSEN: Is there some feel you can give me for how many, what percentage of the locations where they had to use an alternate technique?

MR. RINCKEL: They have 81 control rod drive penetrations and eight in-cores. I don't know the exact number, but I think the periphery ones they were able to do bare metal, and so I would guess somewhere around 80 percent they had to use the alternate technique.

MR. ROSEN: They used the alternate technique for 80 percent?

MR. RINCKEL: That would be my guess, but I don't know the exact number.

DR. FORD: Did you say that this was deemed a high susceptibility plant, because of temperature time?

MR. YOUNG: Right. Yes.

DR. FORD: I thought the high susceptibility plants had to have 100 percent volumetric? Is that not true?

MR. RINCKEL: Well, the --

DR. FORD: Whatever bulletin that was.

MR. RINCKEL: The volumetric was done of the welds, the partial penetration weld, so they did all of that.

DR. FORD: Okay.

MR. RINCKEL: This is the -- they are talking about the bare metal on the external surface and looking for boric acid. And Entergy, because of the configuration of the shroud, was not able to do that. And that's why they use the alternate technique of an eddy current combined with UT.

DR. FORD: Okay. But the volumetric which was done on the welds --

MR. RINCKEL: Yes, almost 100 percent.

DR. FORD: -- showed no cracking?

MR. RINCKEL: That's correct. Yes.

DR. FORD: So this must be one of the few plants which is a high susceptibility plant which has not seen cracking?

MR. RINCKEL: Correct. Yes.

MR. ROSEN: On the other hand, we're relying on the volumetric to tell us that rather than the visual inspection?

DR. FORD: Exactly. Exactly.

MR. ROSEN: By and large.

CHAIRMAN BONACA: Yes, which gives us more comfort.

DR. FORD: But one presumably with time, you will see cracks.

MR. YOUNG: Right. And that's why we've got a long range plan to replace the head, because we expect eventually there will be cracking.

DR. FORD: Okay.

MR. YOUNG: Okay. Well, that's all I had for my presentation. Any other questions?

DR. FORD: I have a general question, but you can be the estoppel answer that maybe you could comment on. I noticed in some places that you claimed AMP was not applicable. For instance, baffle bolts, because you don't have baffle bolts. But that is just transferring the problem to now the question of cracking of the weldments. Did you do that transfer of thought process that okay, we don't have to worry about baffle bolts, because I don't have them. What do I do about the welds?

MR. YOUNG: Well, using the Reactor Vessel Internals Program we consider all the aging effects applicable to the internals whether it is bolting or welds.

DR. FORD: All welds?

MR. YOUNG: Yes.

DR. FORD: Okay.

MR. YOUNG: Yes.

DR. FORD: Okay. So we'll talk about that later on.

MR. YOUNG: Okay.

DR. FORD: Good.

MR. LEITCH: I noticed that in a number of places you used, and again this is one that I'm not sure if it's a staff question or a question for you, but you assumed 48 equivalent full power years at the end of the 60 year period. It's my recollection that most of the previous applicants we have seen assume 54 equivalent full power years. That is an overall capacity factor of 90 percent. And you are assuming an overall capacity factor of 80 percent.

MR. YOUNG: Yes.

MR. LEITCH: I just wonder about the rationale for that number. I believe your capacity factor has been about 80 percent through the first 29 years or so of operation. Would you not expect that, therefore, the overall capacity factor over the whole 60 year period would be something considerably greater than 80 percent, perhaps approaching 90 percent? And if that is the case, then I wonder about some of the

nil-ductility numbers and so forth.

But I guess my question first of all is could you discuss the rationale for the 80 percent capacity factor over the 60 year period?

MR. YOUNG: Yes, I'll ask Mark Rinckel. He is our -- he did the fluence analysis for the project.

MR. RINCKEL: Again, Mark Rinckel. The use of 48 EFPY we were consistent with ANO - Unit 1. ANO - Unit 1 also used 48 EFPY. 60 years times 80 percent capacity factor. You are correct in that ANO - Unit 2 through 25 to 27 years has a capacity factor of .8 and so we use that as a rationale that that was reasonable to go on to 60 years of operation. We also rely on the Reactor Vessel Integrity Program to make sure that those numbers are going to be consistent for 60 years.

In other words, we're going to look at the fluence and update the fluence evaluation as we pull capsules out. Then there will be another fluence update extrapolation and then we will compare it to the one that we use now. So it's not as if it's a snapshot here and it's never updated. So our Reactor Vessel Integrity Program will ensure that the fluence values that we use for 60 years in this calculation

will remain valid.

MR. LEITCH: Yes, I guess we'll talk about it later on when we get to TLAAs, we may talk a little more about that.

MR. RINCKEL: Yes.

MR. LEITCH: But I think there is a lot of areas where you assume an equivalent capacity factor over the period of time, and I guess 80 percent to me seems just to be a little on the low side. In other words, if you've been 80 percent for the first 25 years, I think most plants would expect maybe something like a 90 percent capacity factor for the remaining life which would make the overall average considerably more than 80 percent.

MR. RINCKEL: Well, I think, they would hope for that.

MR. LEITCH: Yes.

MR. RINCKEL: But again, you know, based on 25 years of experience, that's the data point that we had. With regard to this particular vessel, their PTS value limiting is 127 degrees. We could have probably doubled the fluence and still shown acceptable results. The Upper Shelf Energy value maximum was about 58 foot-pounds. Again, we could have gone to 54 and maybe even higher.

Part of what prompted this was back when we first started doing license renewal. ANO had done power uprate and they had actually calculated all of these values to 48 EFPY. We saw no reason to revisit it and redo it at that time. They are very expensive analyses to do, so we felt that it was a reasonable approximation, based on an 80 percent capacity factor through the first 25 to 27 years of operation.

MR. LEITCH: So the USE, I guess, I wasn't sure how USE was related to the EFPY. What you're saying is -- in other words, I wasn't sure about the sensitivities there. But what you're saying is you feel quite confident that even if had you used 54, you would have still satisfied the USE.

MR. RINCKEL: I think we could have. We probably could have used 60 and still satisfied the Upper Shelf Energy. And certainly the PTS at 120 some degrees is 200 and some odd below.

MR. LEITCH: Yes.

MR. RINCKEL: So there's no question PTS wise.

MR. LEITCH: PTS.

MR. RINCKEL: You know, absolutely.

MR. LEITCH: It was the USE.

MR. RINCKEL: Yes, the Upper Shelf Energy,

I believe, the max was 58 foot-pounds, so I believe that was for the weld and not the plate.

MR. LEITCH: Okay. Thank you.

MR. RINCKEL: Yes.

MR. ROSEN: Well, is staff going to address that point?

DR. KUO: Yes.

MR. ROSEN: Okay.

MR. YOUNG: Okay. That's all. That's all I have.

CHAIRMAN BONACA: Do we have questions from Members? If not, I thank you for the presentation.

MR. YOUNG: Okay.

CHAIRMAN BONACA: And now we hear from the staff.

MR. YOUNG: Thank you.

DR. KUO: Thank you. Greg Suber, Project Manager, for the subrogation.

MR. SUBER: Good afternoon. My name is Gregory Suber and I am the lead project manager for the ANO-2 license renewal. Sitting to my left is Rebecca Nease and she was the lead, the team leader for the license renewal inspections for ANO-2. The Safety Evaluation Report or SER for ANO-2 was issued

on November 5, 2004. This SER reflects the staff's review of the license renewal application, responses to requests for additional information, audits, inspections and supporting documentation submitted by the applicant up to October the 15th.

The SER for ANO-2 was completed with no open or confirmatory items. As a result of the staff's review, five components subject to an Aging Management Review or AMR were brought into the scope of license renewal. In addition, a one-time inspection AMP will be added to manage the aging effects associated with various (a)(2) components.

Three license conditions are being proposed for the new license. The first is for the applicant to update the FSAR upon issuance of the renewed license. The second is to complete future activities described in the FSAR supplement prior to entering the period of extended operation. And the third is to submit it for NRC review and approval any changes to the Reactor Vessel Surveillance Program. The third license condition is identical to the one that was issued for Farley and has been placed on recent applications.

The ANO-2 License Renewal Review was the second of three pilot programs implementing the

revised review process. As seen on this slide, the revised process consisted of a mix of technical reviews, on-site audits and on-site inspections. For ANO-2, the audits took place on the weeks of December 1, 2003, January 20, 2004 and February 9, 2004.

The scoping and screening inspection took place on March 5, 2004 and the results were documented in an inspection report issued on April 19, 2004. The Aging Management Inspection took place this past November. Consequently, the inspection report has not yet been issued.

MR. LEITCH: Gregory?

MR. SUBER: Yes?

MR. LEITCH: These various inspections, are we going to hear others speak about those or are you the proper one to ask questions about these? I have a couple of questions and I'm just wondering when is the right time in the presentation to get into that?

MR. SUBER: Yes, Mrs. Nease is going to do the presentation for the regional inspections, which is the scope and screening inspection.

MR. LEITCH: Okay.

MR. SUBER: And Mr. Cranston and other staff members are going to talk about the other

inspections.

MR. LEITCH: Okay. Good. Thank you.

MR. SUBER: I will now discuss the staff's review of the scoping and screening as documented in Section 2 of the SER. In Section 2 of the SER, the applicant describes -- oh, excuse me, in Section 2 of the LRA, the applicant describes the process used to identify the structures and components subject to an Aging Management Review. In Section 2.1, the applicant describes the methodology used to identify structures, systems and components for SSCs that are within the scope of license renewal and subject to an AMR.

The staff reviewed the LRA and conducted an on-site audit to verify that the methodology met the rule. The results of the audit were published in an Audit Trip Report issued on October 7, 2004. The report identified areas where additional information was needed to complete the staff's review. The staff issued RAIs, evaluated the application and the applicant's responses and documented its review in the SER. The staff concluded that the applicant's methodology was consistent with the requirements of the rule in the staff's position on the treatment of non-safety-related SSCs.

In Section 2.2 of the SER, the staff performed plant level scoping to determine that the applicant included the appropriate mechanical systems, electrical systems instructions within the scope of license renewal for ANO-2. The staff found no omissions for plant level scoping.

In Section 2.3, the staff documented the results of its review for the scoping and screening of mechanical systems. One component, a feedwater outboard isolation block valve was added to the scope as a result of the staff's review.

In Section 2.4, the staff documented the results of its review for the scoping and screening of structures and structural components. One component, the intake canal was added to the scope of license renewal. Actually, that's in error. It was already in scope, but there was no AMR for the intake canal. And what the staff did is identified aging effects requiring management, and consequently, an SMP which was a Structural Monitoring Program, and we'll discuss that later, was added by the staff's review.

MR. LEITCH: Now, the spent fuel cooling pumps.

MR. SUBER: Yes, sir.

MR. LEITCH: Were added as a result, I

guess, of the scoping and screening inspection?

MR. SUBER: Yes, sir.

MR. LEITCH: And I thought as I read through that, there was still a little confusion in my mind as to whether the pumps are now included or just the pump casings.

MR. SUBER: Okay.

MR. LEITCH: Which is the case?

MS. NEASE: From what I understand, the pumps are included in the scope, but they would be screened out and just the casings would be the passive, long-lived component that would be in the scope.

MR. LEITCH: So the pumps themselves do not provide a safety-related function? It's just the pressure boundary?

MR. SUBER: The pressure boundary for the casings. Yes, sir.

MS. NEASE: It's the pressure boundary.

MR. SUBER: Yes.

MR. LEITCH: Right. They are active. Yes, I understand. Okay. I understand. And I guess you also -- while you're talking about structures, I noticed too that the -- on the emergency cooling pond the riprap and the riprap liner are not included in

the scope. Perhaps I'm not picturing this thing properly. I guess it's like an earthen dike, an earthen structure. I would have thought that in order to maintain the integrity of that structure, the liner and the riprap would have to be there. But evidently that's not included in the scope. Why was that not included?

MR. SUBER: Correct, it's not included in the scope, because they don't take credit for it for maintaining the integrity of the emergency cooling pump.

MR. LEITCH: I'm not sure I understand that answer. I would think the liner would be important to maintain the integrity of the emergency pond. Not so?

MR. SUBER: Is Mr. --

DR. KUO: Let me see if any --

MR. SUBER: Yes.

DR. KUO: -- tech staff can answer the question.

MR. SUBER: That would be Mr. John Ma, presumably.

MR. YOUNG: We've got our structural lead here that can give you a little more information.

MR. AHRABLI: My name is Reza Ahrabli,

introduced as the structural lead. The question you have is regarding the liner in the emergency cooling pond. Is that correct?

MR. LEITCH: Yes.

MR. AHRABLI: Okay. The emergency cooling pond is not lined. The only portion that's got a riprap is around the overflow. So it's just like an earthen structure, which is just like a pond and we monitor by the structural monitoring and also by the-- which is on the -- of course, we have the program described in the LRA and also by the ponding, which is the level of the emergency cooling bob is monitored.

MR. LEITCH: Okay. So there's no liner in the pond?

MR. AHRABLI: No.

MR. LEITCH: It's just an earthen pond?

MR. AHRABLI: That is correct.

MR. LEITCH: And the --

MR. AHRABLI: Only riprap we have is around like an overpath, overflow.

MR. LEITCH: Like a spillover?

MR. AHRABLI: Correct, spillaway.

MR. LEITCH: Okay. And that spillover has a liner?

MR. AHRABLI: That is correct.

MR. LEITCH: That's not in scope, that's just an overflow?

MR. AHRABLI: That is correct. That's correct.

MR. LEITCH: Yes, okay.

MR. AHRABLI: The level is monitored by the structural monitoring.

MR. LEITCH: Yes, okay. Because there is no liner in the emergency pond.

MR. AHRABLI: That is correct.

MR. LEITCH: Okay. Thank you.

MR. AHRABLI: Okay.

DR. FORD: Could I return to the question of the what is in scope in regards pumps? Pump casing is in scope and the rotating or active part is not? This is an issue that has come up time and time again. And we have expressed some wonderment as to why we don't look at the whole unit that's within the scope. Is there any thought that's been taken by the staff? Not necessarily because of this particular application, but this issue in general? Is there any more thought that's been given as to the logic behind that?

MR. SUBER: To include active components in the scope of license renewal?

DR. FORD: Within that component. Within the pump or whatever.

MR. SUBER: Okay.

DR. KUO: Dr. Ford?

DR. FORD: Yes?

DR. KUO: When we established the rule that basic principle was that the maintenance rule would take care of the active parts of the pump and then but the casing, being a pressure boundary, a long-lived passive, so that is within the scope of license renewal. But, you know, we noticed based on our past experience that all these active components are properly -- are being properly taken care of by what we have now. There is no need to add anything there. But pressure boundary is something that we need to have taken care of. That's why we scope in the pressure -- the casing of the pump.

CHAIRMAN BONACA: Why was the intake canal structure not included in the scope by the applicant?

MR. SUBER: Excuse me, sir. I misspoke when I said that the intake canal was included in scope.

CHAIRMAN BONACA: Okay.

MR. SUBER: But they did not -- they failed to identify any aging effects requiring

management.

CHAIRMAN BONACA: Yes. Okay.

MR. LEITCH: I also noted that there is a system called diesel fuel services that was not in scope. And I guess anything related to diesel sounds to me like it ought to be in scope. Maybe I don't understand what the diesel fuel services system is. Is it just a bedplate drain kind of a system or what is it?

MS. NEASE: Ted can answer that.

MR. IVY: Ted Ivy, I'm with Entergy. The diesel fuel services system only contains two components, and those two components are some drains from a berm that protect the day tank for the diesel fuel storage tank. They are not required to have any safety function. Originally, when the plant was split up with various systems, they had some components in there that were safety-related. However, all those components were moved to the fuel system. So the only two remaining were these two components, which that's why the system wasn't included. We probably could have just got rid of the system, but it took a lot of paperwork to do that, so we just evaluated it the way it was.

MR. LEITCH: Okay. Thanks.

MR. SUBER: In Section 2.5, the staff documented the results of its review for the scoping and screening of electrical instrumentation and controls. One commodity group, power transmission conductors was added to the scope by the staff's review.

We will now move to the discussion of the license renewal inspections. Ms. Rebecca Nease, the License Renewal Inspection Team leader for ANO-2, is here to discuss the status of ANO-2 review, licensing inspections.

MS. NEASE: Thanks, Greg. Like Greg said, my name is Rebecca Nease. I'm a team leader in the Plant Engineering Branch in Division of Reactor Safety in Region IV, and as a team leader I lead team inspections, not just license renewal, all sorts of engineering team inspections. But I was there with the team leader, the team leader for ANO-1 inspections back in 2000, and I'm the team leader for the ANO-2 inspections.

As was discussed earlier, ANO-2 is part of the pilot program. And because of that, we scheduled our inspections to support that pilot review program. We've scheduled our scoping and screening inspection in March and we moved back our Aging Management Review

inspection to November until we had the SER. And as yet, we have no determined whether we need that third optional inspection.

Next slide, please. The objective of the scoping and screening inspection is to confirm that the applicant has included six structures and components in the scope of license renewal as required by the Rule Part 54. My scoping and screening inspection team included three regional inspections. There we go. Three regional inspectors, one resident inspector and we also have help from Greg Suber on the side. This inspection was one week in length and we were on-site the first week in March.

Did I skip a slide? The order was different. Okay. What's the next slide? That's all right. The results of our scoping and screening inspection are documented in Inspection Report 2004-006 dated April 19, 2004. In this inspection, we concluded, in general, that the applicant's scoping and screening process was successful in identifying those system structures and components requiring an Aging Management Review. I think we're on the wrong--

DR. WALLIS: Excuse me. Did you evaluate the quality of these programs it has implemented or plans to implement, which always sounds good? But how

good are those programs themselves?

MS. NEASE: We didn't look at -- in the scoping and screening, we didn't look at the Aging Management Program.

DR. WALLIS: But did you at some time evaluate how good the programs are?

MS. NEASE: We looked at the quality of the programs. That was in the next inspection.

DR. WALLIS: Are you going to tell us about that later?

MS. NEASE: Yes.

DR. WALLIS: Okay. Thank you. I'll look forward to it. It always concerns me. There's a long list of all the things which are going on.

MS. NEASE: Right.

DR. WALLIS: But there isn't a sort of an evaluation of how good they are.

MS. NEASE: Well, yes, we do look at the quality of those programs and I can talk about it now if you want to or move on.

DR. WALLIS: Well, whatever is convenient for you.

MS. NEASE: Well, I can't -- the inspection report is not out and so the information is predecisional, but I can tell you that when we do look

at those -- we look at the -- especially for the programs, Aging Management Programs that are in place and doing their job right now, we look at how effective they have been in doing that job. And to do that, we look at some of the past Condition Reports that might have been issued and failures that might have come up as a result of aging.

DR. WALLIS: An action should be taken.

MS. NEASE: And we also do walkdowns.

DR. WALLIS: Perhaps, yes.

MS. NEASE: And, yes, that's one of the things we look at and that's why it's important to look at current programs that are actually doing the work so that we can be sure that the ones that they are going to take credit for are actually doing the work for them.

MR. LEITCH: Rebecca, I had a question about this scoping and screening inspection report dated 4/19/04. I think we are all talking about the same one here. Attachment 2 of that report, there was a tabulation some systems saying yes in scope, some no.

MS. NEASE: Yes.

MR. LEITCH: And I guess my question is were all the yes systems reviewed or just a sample of

the yes systems? It wasn't entirely clear to me. There were some -- many of them said yes and there were a few that said no, not in scope. But were all the ones that were in scope reviewed? And if not, then what was the sample size of the ones that were reviewed?

MS. NEASE: These are the systems and structures that we chose to review. An inspection is always a sampling. We don't -- in an inspection, we don't do a 100 percent. We don't have the staff to do that. So what we did is we picked a number of system structures and components that the licensee/applicant had determined was in the scope and we reviewed that to make sure that the components and that they drew their boundaries in the right way, in the right manner in accordance with the rule of their application and the SER.

We also picked some that they had determined were out of scope to make sure to test their thought process on how they determined that was out of scope to ensure that they were doing that in accordance with the rule, the SER and their application.

MR. LEITCH: Let me ask my question a different way. In other words, those systems that are

listed there in Attachment 2, page 1, where it says "yes," did you look at every one of those systems or just a sampling of those systems?

MS. NEASE: For instance, the first one listed is the aux-steam, auxiliary steam system.

MR. LEITCH: Yes.

MS. NEASE: We looked at the license renewal application, their method. We looked at the methodology, their number of background documents. We looked at for how they performed the scoping and screening on that system. Obviously, that system is in scope. And we looked at how they determined to draw the boundary of that system.

MR. LEITCH: Okay.

MS. NEASE: We also walked down any accessible portions of that system to make sure that it made sense, that where they drew the boundaries made sense with respect to license renewal. Again, I can't say --

MR. LEITCH: Let me ask you, maybe I'm not asking my question very well. Were there other systems that were in scope that you did not look at at all?

MS. NEASE: Yes, there are.

MR. LEITCH: Okay.

MS. NEASE: Yes, there were. These are not all the systems that the applicant has determined are in scope.

MR. LEITCH: Then can you give me some idea for the percentage of the ones that you looked at?

MS. NEASE: Oh, let's see. They have -- Garry had a slide earlier that said how many systems, how many mechanical systems you have in the scope. There were 33?

MR. YOUNG: Yes, this is Garry Young. There were 33 Aging Management Programs.

MS. NEASE: Oh.

MR. YOUNG: I don't know the number.

PARTICIPANT: Around 30.

MR. YOUNG: Yes, there are around 30 mechanical systems.

MS. NEASE: That they had determined were in scope. It looks like we have 30 here.

MR. LEITCH: Yes.

MS. NEASE: But some, a number of those we chose as out of scope systems to just test their thought process in eliminating those systems.

MR. LEITCH: So I'm not necessarily looking for an exact number, but just a kind of a feel

for what you did. I guess, what I'm hearing is that you looked at a very high percentage of the ones that they felt were in scope.

MS. NEASE: A high percentage, yes.

MR. LEITCH: Okay. And another question, I guess, in that same area, the next page in that attachment talks about electrical systems. Now, there are no electrical systems listed that are not in scope. And I guess, again my question is did you not look at -- were there no electrical systems that were not in scope or did you just not look at electrical systems not in scope? In other words, in the mechanical systems certain things were not in scope and you looked to be sure that you agreed with that determination. In the electrical area there is nothing listed not in scope. So how did you do that kind of review with electrical systems or did you not do that kind of a review?

MS. NEASE: Well, we didn't have to, because all of their electrical systems were scoped in.

MR. LEITCH: Okay.

MS. NEASE: And so they sort of made it easy. We didn't have any to choose that were not in scope. They were all in scope.

MR. LEITCH: Okay. Thanks.

MS. NEASE: Okay.

MR. ROSEN: Could you hold it there for a minute, 13? You brought two items into scope, including the switchyard control house.

MS. NEASE: Yes.

MR. ROSEN: Tell me more about that, the switchyard control house.

MS. NEASE: Okay. When we were doing our walkdown in the switchyard, we were doing the electrical system walkdown in the switchyard and we noticed that the startup-breaker control cables had come up and were supported in a -- they were supported by the slab of this control house in the switchyard. The startup-breaker control cables are in scope, because they are part of station blackout coping. But the structure holding up the cables were not. So when we brought that up to the applicant, they agreed that, you know, the support system for those cables should be in scope and therefore they just scoped the entire building into the scope of license renewal.

MR. ROSEN: And there are no components within the switchyard control house that are within scope? It was just the support function for the --

MS. NEASE: Well, the breaker, the control

cables were in there. They included all the electrical in scope.

MR. ROSEN: Oh, I see. That went into the switchyard control house.

MS. NEASE: And we went into the control house and we looked at the cables, we were walking down the system and we asked the question, this building is not in scope, why not, because it actually supports supporting systems and cable trays and whatever to hold up the cables and they agreed.

MR. ROSEN: Well, it would seem to be obvious to that if there were electrical components within the switchyard control house that were in scope. Is that what you said? That the building and the slab supporting it would be in scope.

MS. NEASE: Yes.

MR. ROSEN: Not because of a set of cables that came up and went through another transformer.

MS. NEASE: Yes, but the cables were in scope because of station blackout.

MR. ROSEN: Yes. And the components in the switchyard house were in scope because of?

MS. NEASE: Station blackout. They were the control cables.

MR. ROSEN: Yes, we're going around

circles here.

MS. NEASE: Sorry.

MR. ROSEN: I'm forgetting about the cables that were found to -- I'm just thinking about things inside the switchyard control house. For example, batteries.

MS. NEASE: I don't think there were any batteries in there, but anything that -- maybe Garry can help.

PARTICIPANT: There's got to be.

MR. YOUNG: Yes, there was nothing in that building that was in scope for license renewal, except this control, one control cable or cables and they were just -- we knew the cables were there and they were in scope. But at the time, prior to the walkdown, we didn't realize that they ran through this building. So by the fact they ran though the building, we brought the building in scope, but nothing else in the building serves to function (a)(1), (a)(2), (a)(3) function.

MR. ROSEN: All right. That was what was confusing me.

MS. NEASE: Okay. Any other questions on what we --

MR. LEITCH: Yes, I had one other on that

scoping and screening inspection report. Part of the report says "The applicant excluded portions of systems that were not housed in safety-related structures on the basis that no safety-related components are housed in non-safety-related structures." And I guess my question really is are there no situations where safety-related systems extend into non-safety-related structures?

MS. NEASE: I think --

MR. LEITCH: I can picture stubs, let's say, in safety-related systems up to a valve or some other isolation point extending out of a safety-related structure into a non-safety-related structure. That does not happen?

MS. NEASE: In our inspection, we didn't identify any.

MR. LEITCH: Yes.

MS. NEASE: But I think the applicant -- if the structure housed a safety-related component, I believe, am I correct, Ted, that they scope that structure in for that one safety-related component that happened to be in the structure. That was their methodology. We didn't find any exceptions to that in the inspection.

MR. LEITCH: So every safety-related

component is in a safety-related structure, so far as your inspection?

MS. NEASE: An in scope structure.

MR. LEITCH: In scope structure, yes. Okay.

MS. NEASE: As a matter of fact, I think in ANO-1, correct me if I'm wrong, Garry, but I think in ANO-1 the staff way back in 2000, the staff identified some cabling in the turbine building and that brought -- determined to be in scope. Isn't that right, Garry?

MR. YOUNG: Yes, that's right. There were some. I think it had to do with station blackout or ATWS and yes, we did bring the turbine building in as a result of that.

MS. NEASE: Okay. Like I said, we just finished the Aging Management Review inspection. We were on the site the first weekend, the third week of November. The objective of the Aging Management Review inspection is to confirm that the licensee has implemented or plans or has plans to implement Aging Management Programs that will manage the effects of aging for the in scope system structures and components. This was a two week effort and the results will be summarized in a future report. The

Inspection Report No. will be 2004-007.

We talked a little bit earlier about some of the -- I can talk a little bit about the reasons I chose the programs we chose or I can talk about the inspection process itself, but the results are predecisional.

DR. FORD: I would like to put off on Professor Wallis' question later on about the quality of the Aging Management Programs and how they are carried out. For instance, was the flow-assisted corrosion Aging Management Program audited?

MS. NEASE: Excuse me, I didn't understand the what?

DR. FORD: The flow-assisted corrosion.

MS. NEASE: No, I did not audit that program. What program? That was not chosen.

MR. YOUNG: The FAC Program.

DR. FORD: It wasn't. As you know, recently, the last few months being accidents in Japan, five flow-assisted corrosion. I'm just concerned at the quality of those programs as to whether we could be heading for a problem. And I'm just trying to push you a little bit to find out how well these programs work.

MR. ROSEN: Peter, I think you're on to

something very good here. Maybe what we should do is ask the staff outside the license renewal contacts to give us a briefing on that subject.

DR. FORD: Yes.

MR. ROSEN: Maybe the industry reps might want to participate as well, given the accident that you pointed out.

PARTICIPANT: Can we?

MR. ROSEN: Sure.

DR. FORD: But could you give a feeling as to -- I know there's a report in the future, but to give us some reassurance, if you like, as to the depth of which you examined these programs?

MS. NEASE: Sure.

DR. FORD: What sort of questions are asked and what are the answers you get?

MS. NEASE: Well, what we did is we had a team about the same size and we used the same members, except we were lucky to talk Caudle Julian, which you all know from Region II, to come in on the inspection. What we did was we picked the Aging Management Programs that -- what I had done earlier before I started these inspections is I observed some of the audit efforts at the site. And what we tried to do, because this is a pilot and they were at the site

auditing certain systems and programs, what we tried to do is not duplicate efforts so much.

Now, I did choose some other programs and some of the systems and structures and components that were audited, but for the most part, I tried to stay away from the ones that the audit teams had looked at in depth on the site. What we did is we picked Aging -- I talked with Greg Suber and he had some ideas on what the staff had had some difficulties in their review or a lot of questions and we hit those programs up. If we had certain programs that might have had some questioning effects or abilities of the program to perform, what they were supposed to do, then we looked at those programs.

We tried to hit the high level risk significant type programs. Fire protection, for instance, we picked that system and then we looked at the programs that managed the aging for that system, because we know fire protection is a real high significant event, and so we picked those Aging Management Programs.

DR. FORD: That's a very good example, fire protection system. The many carbon steel pipes, they are fairly stagnant. They do corrode and the corrosion product will block up nozzles. Now, that

sequence of statements, were those examined, quantitatively?

DR. KUO: Dr. Ford?

DR. FORD: Yes?

DR. KUO: If I may, I think this is a little confusing here. The process that the staff uses is that the headquarters staff is going to do the review of the acceptability of an Aging Managing Program. It could be review the in-house. It could be done, the review could be done at the site. As far as the quality of the program is concerned, either the headquarter staff or the audit teams will be assessing the quality of the program. But the region of function here is that they are going to make sure the program is implemented or will be implemented as described, as committed by the applicant.

So in the later presentation by our Audit Team leader, he will talk about a little bit on this audit, you know, as far as the quality is concerned.

DR. FORD: Today?

DR. KUO: Today.

DR. FORD: Okay.

CHAIRMAN BONACA: The reason why these are good questions, however, about the quality of the programs is that I would have raised this issue myself

if you had not. In this application, for example, if I go to Appendix B, there is a description about every program, but it's very skimpy. There isn't much information. I imagine this is the same information you receive up front, so you are left with questions in your mind about the quality, in the sense of, you know, what's in it. There is some description of it. You are left with a number of questions in your mind about that.

So I tend to then go to operating experience, which is under those programs. Even that is very briefly described. Now, you have the advantage, you go to the site. So are you using, for example, operating experience to understand, you know, to see how effective a program was? Because, I think, that's the most important thing to see. Is the correct program effective in dealing with events they have identified and resolving them in a permanent fashion? That's really the advantage you have over us and that I would like to hear about that, I mean.

MS. NEASE: Yes, we do consider operating experience. Again, we are looking on a sampling basis.

CHAIRMAN BONACA: Yes, no, I understand.

MS. NEASE: So we can't look at everything

and all of the experience.

CHAIRMAN BONACA: Yes.

MS. NEASE: But we do consider that.

CHAIRMAN BONACA: For example, let me give you some other trouble I have, okay? I go to B.1.2 in the Appendix and I find the statement that says that's bolting and torquing activities. It says "repetitive occurrences of deficient bolting and torquing activities are identified by the Arkansas Staff." And then it says "corrective action." So I'm left with a question that's is this the action that they are going to take? Which is if there are repetitive occurrences, the corrective action programs will identify them and deal with them, which is a promise or is it a statement of something that has happened? That they identified the repetitive occurrences of the deficient bolting and identified them to the correcting action program, which proves that the program is corrective.

You see what I'm trying to say? I could read these words in two ways and that's what I'm left with. That's why I ask you these questions, because you have been at the site and I haven't.

MS. NEASE: We would be able, if we chose the Bolting and Torquing Program.

CHAIRMAN BONACA: Yes.

MS. NEASE: We would be able to inspect CRs that happen to be written.

CHAIRMAN BONACA: Okay.

MS. NEASE: Condition Reports that happen to be written. We would look at -- we also walkdown.

CHAIRMAN BONACA: Yes.

MS. NEASE: The system structures and components, we look for aging effects that might not be managed now.

CHAIRMAN BONACA: Yes.

MS. NEASE: To give us an indication of how those programs are working. We do have an advantage of being at the site and we have a lot more documentation we can review. And we do an in depth review of those.

CHAIRMAN BONACA: Okay. Yes.

MS. NEASE: If we choose that program to look at.

CHAIRMAN BONACA: Okay. I just wanted to -- I know you have the same experience when you look at, you know, those Appendices at the beginning. But that's really what I'm left with. Now, that was interesting, you know, like take the boric acid corrosion prevention says Arkansas Two has five

pressurized heater sleeve leaks throughout this program. Okay. And then it says this proves that the program is effective. I'm saying wait a minute now.

If, in fact, the program was supposed to prevent leakage, it would not be effective. If the program is, in fact, you know, depending on identifying this before something else, that is effective. So the same phrase could support the effectiveness and ineffectiveness and that's why I think these questions are valid, because we are left here with those judgement to make from the basis of just very skimpy writing that can be interpreted.

DR. WALLIS: You have to also, I think, evaluate the people not just the program. Do you go there and say you pick the Bolting and Torquing Program, I want to see whoever is in charge of this program and whoever may be an engineer and who knows what's going on. And the first thing you ask them is a question to find out if they know that they are in charge of the program. Once you have determined that, then you can start asking them technical questions. You do this sort of thing?

MS. NEASE: Absolutely. It's a big part of our inspection. And as a matter of fact, when we go, when we do our walkdowns the program manager

usually goes with us or the system engineer goes with, but we're -- interviewing the people responsible for the program is a very big part of our inspection.

DR. FORD: Could I just follow-up? You said just a sample of the 33 AMPs audited. How many were, in fact, audited? Three or four? Four?

MS. NEASE: Oh, no. Gee.

MR. SUBER: No, you said -- she said a sample of the mechanical system.

MS. NEASE: No, we're talking about the Aging Management Program.

MR. SUBER: Oh, okay.

MS. NEASE: And I don't have that. We have it written in the report.

DR. FORD: Okay.

MS. NEASE: Right off the top of my head, I think, we reviewed 10, 12 of them.

DR. FORD: Oh, okay.

MS. NEASE: I didn't bring my inspection plan with me. I'm sorry.

DR. FORD: And you mentioned in passing, you chose those because of risk?

MS. NEASE: Well, some of it based on risk. Some of it based on the fact that we wanted to have a sampling of programs that were in place and

working now, programs that they are going to enhance and then we wanted to look at the attributes of programs yet to be implemented. So we chose a mix of those.

DR. FORD: Okay.

MS. NEASE: And of the programs we chose, we based some on risk, some on some feedback from Greg and the staff on some programs they wanted us to look at in depth. We used all of that in our choosing of our programs, in our selection.

DR. FORD: Okay.

MR. LEITCH: Page 6 of the Audit and Review Report dated 7/29/04 says that 26 of the Aging Management Programs were examined.

MS. NEASE: That was the audit.

PARTICIPANT: The audit.

MS. NEASE: That's not the inspection.

MR. LEITCH: I understand, yes.

MR. YOUNG: Rebecca, your initial list that you sent to us had 23 programs on it.

MS. NEASE: Okay. Thank you.

DR. WALLIS: Did they all get As?

MS. NEASE: It depends on your definition of A. We'll know soon when I get that report out.

DR. WALLIS: Okay.

MS. NEASE: Okay.

MR. SIEBER: It's digital, zero and one, right? You either did it or you didn't.

MS. NEASE: By statement. Go or no go? We pulled this off the website. This is to give you all an indication of the current performance at ANO and this is performance indicators. And as you can see, there are -- you know, all these are green, at this point. Here is another slide.

But to give us another data point for current performance, also on the website you can pull up inspection reports, and we issued a mid-cycle performance review letter. We issue an end of cycle and we issue a mid-cycle review performance letter. And I looked at the last mid-cycle performance letter that was issued by Region IV. It's dated August 30, 2004.

And in that letter, it says that the licensee, it's licensee or applicant if you want to talk about licensure, is in the regulatory response column of the NRC's action matrix, and that is due to a white finding we had in fire protection. We issued that white finding in the spring of this year, so that throws them into the regulatory response column. It requires us to do a special inspection.

MR. ROSEN: Isn't it contradictory to the slide you just showed us with the all green?

MS. NEASE: No, those were performance indicators. So if you go back to that slide, if you look at that slide, unplanned scrams, emergency AC power, all these little squares are not inspection findings.

MR. ROSEN: Okay.

MR. SIEBER: No, they are performance indicators.

MS. NEASE: This is performance at the plant.

MR. ROSEN: But now, you got a white finding in fire protection.

MR. LEITCH: It's an inspection finding.

MS. NEASE: Yes, it was an inspection finding.

MR. SIEBER: It's the Inspection Program. It's on the other side of the matrix.

MS. NEASE: Actually, if you go to the website and you go down a page, you will get another chart with these greens and that is the inspection performance chart.

MR. SIEBER: Yes, right.

MS. NEASE: Go back to the next one.

Okay. Also in this annual assessment letter, we noted that there was a substantive cross-cutting issue concerning problem identification and resolution. And this was identified earlier in the annual assessment letter, but it was also mentioned again in this mid-cycle performance letter.

MR. ROSEN: This white finding in the action matrix, is that the only one they have got?

MS. NEASE: Yes. Well, we have green findings, but it doesn't actually -- green findings don't actually take you into a response column.

CHAIRMAN BONACA: Could you tell us a little bit more about this substantive cross-cutting issue? I mean, that's in the Corrective Action Program.

MS. NEASE: Right. It's in the Corrective Action Program and it was the result of a number of findings that we had identified and accumulated to a little of a concern. But recently we have noted there are some improvements in the PI&R Program, but we continue, and you can pull this letter up and read it, but the letter states that they are going to continue to focus on problem identification and resolution. We are going to focus in our inspections.

We all have a little bit of problem

identification and resolution required to look at in each inspection, so we're going to focus on looking at prioritization, implementation and effectiveness of the Corrective Action program.

MR. ROSEN: That wasn't much of an answer, I'm afraid, Rebecca, to what was the substantive cross-cutting issue?

CHAIRMAN BONACA: Yes.

MS. NEASE: Well, problem identification and resolution.

CHAIRMAN BONACA: Yes.

MS. NEASE: Corrective Action Program errors and because we found them across the board at the plant and in all organizations of the plant or most, and it also crossed the cornerstones, mitigating systems, barrier integrity. We saw the issue in all of the cornerstones, so they call that a cross-cutting.

MR. ROSEN: And the issue was those three things you just mentioned? Go over them for me one more time.

MS. NEASE: Prioritization, implementation and effectiveness of corrective actions, and that's all mentioned in this letter dated March 3, 2004.

MR. SIEBER: There isn't much else, I

mean.

CHAIRMAN BONACA: So their program --

MS. NEASE: Well, root cause analysis would be part of it.

MR. SIEBER: Yes, right.

MS. NEASE: Extent of condition would be part of corrective action.

MR. ROSEN: So you have got an important issue on their PI&R Program, I think, and this white finding in the area of fire protection, what was that underlying substantive issue there?

MS. NEASE: We actually identified the finding several years ago and it's a fairly political issue. It has to do with taking credit for manual actions.

MR. ROSEN: I don't know a thing about that.

MS. NEASE: It's not aging management.

DR. WALLIS: Well, that is something, which is universal, isn't it, as a problem?

MR. SIEBER: Go get 'em, Steve.

MS. NEASE: Yes. Yes, it is. Yes, it is.

MR. ROSEN: So this is a case of whether to credit for operator manual actions?

MS. NEASE: Yes, sir.

MR. ROSEN: And the post fire shutdown response?

MS. NEASE: Yes, sir.

MR. SIEBER: Without --

MR. ROSEN: Without prior approval of the staff?

MS. NEASE: Yes, sir.

DR. WALLIS: Everybody does it and some people get a white finding.

MR. SIEBER: No, not everybody does it.

MR. ROSEN: Not everybody does it.

DR. WALLIS: Well, many people do it.

MR. SIEBER: No, some people do it.

MS. NEASE: But they did not get this white finding as a result of not managing aging of the Fire Protection Programs.

MR. SIEBER: Eight people did it.

CHAIRMAN BONACA: The reason why we have an interest in this PI&R, of course, is that it seems to me that the whole Aging Management Program globally depends on the effectiveness of the Corrective Action Program.

MS. NEASE: Right.

CHAIRMAN BONACA: So many of the commitments end up there, so I imagine that you have

noted at the site a commitment to improving the Corrective Action Program?

MS. NEASE: Yes, I can't speak to this, but I would just assume that this Condition Report is written and that they are -- and we did note in this letter, on the document, that we have noticed some improvements. Okay. Anything else? That's the last slide.

DR. WALLIS: Well, you have got a summary slide.

MS. NEASE: No, that's it.

DR. WALLIS: That was it.

CHAIRMAN BONACA: That is the last slide. I think this is a good time for a break.

MR. SUBER: Well, can I do the summary slide?

CHAIRMAN BONACA: Oh, please. Sorry. Okay.

MR. SUBER: So to summarize Section 2, scoping and screening methodology is adequately described and justified in the license renewal application and satisfies the requirement of 10 CFR 54.4 and 10 CFR 21(a)(1). Scoping and screening review results found that the SSCs within the scope of license renewal, as required by 10 CFR 54.4(a), and

those subject to an AMR, as required by 10 CFR 54.21(a)(1), have been identified. And that concludes this part of the presentation.

CHAIRMAN BONACA: Okay.

MR. LEITCH: Rebecca, could you make any comment regarding the material condition of this plant?

MS. NEASE: Oh, yes, actually I could. When we walkdown the plant, a lot of times we will choose fringe areas, areas that don't get walked down a lot, and some of these areas don't get entered very often. And I have to say that the material condition of the plant was very good.

We noted only a few exceptions where we saw some rusty base plates and they were at a scope of license renewal anyway, but the material condition of the plant was very good. And I had just led the training of fire protection inspection, so I had walked down a lot of the fire protection system and I didn't notice any aging effects in any of those systems.

MR. ROSEN: Is there a service water intake structure?

MS. NEASE: We did go into the service water intake structure.

MR. ROSEN: Is it separate from the main cooling?

MS. NEASE: Yes, it's separate from the main buildings, yes.

MR. ROSEN: And what does it look like in there?

MS. NEASE: Well, it's a little messier than the rest of the building, because it's the service water.

MR. ROSEN: It's wet.

MS. NEASE: It's wet, but the Unit 2, I didn't go into the Unit 1, I don't think, I might have gone through the Unit 1 in my fire protection inspection. I'm getting mixed up, but it looked pretty good for a service water intake structure, and they had identified, we noted that they had identified some corrosive piping and they were in the process of replacing those. You could tell where they had replaced some piping that had corroded.

MR. ROSEN: It's carbon steel?

MS. NEASE: Yes.

MR. ROSEN: Tell me one more time about the reactor vessel head. Was that going to be replaced?

MR. SIEBER: Yes.

MR. ROSEN: Maybe the applicant.

MS. NEASE: Yes.

MR. ROSEN: When is that scheduled for?

MR. YOUNG: Yes, we're still working on the schedule, but in the long range planning we do show the reactor vessel head replacement. It's a matter of timing and when we do it, but I think right now the budget process would indicate probably in the next two to three years, but that is still being evaluated.

MR. COX: There is also a modification that is being worked on right now to modify the shroud that Mark was talking about to improve the accessibility for visual inspections. That should happen at the next outage or two outages.

MR. ROSEN: Is that going to be done prior to the replacement of the head?

MR. COX: Yes.

DR. WALLIS: Is head replacement time limited by budget or availability? I mean, if so many people are replacing heads, I wonder if there are enough heads to go around.

MR. YOUNG: Yes. I mean, certainly, the lead time for ordering and receiving a head is significant.

DR. WALLIS: Yes.

MR. YOUNG: And it's also a significant budget item, and it is a high susceptibility item for cracking, so we expect it, but we haven't had it yet. So we're in the planning to ensure that prior to getting into a lot of, you know, well repairs or things like that, we will have everything lined up.

DR. WALLIS: When you have the money to buy it, will it be available or will you have to wait some time? How long will you have to wait?

MR. YOUNG: Yes, we will have to wait. The manufacturing time is like a couple of years.

DR. WALLIS: Several years.

MR. YOUNG: A couple of years.

MR. ROSEN: Yes, I think some of the things you say here are a little inconsistent. I think you said you were going to replace the head in the next two to three years and you haven't ordered it yet?

MR. YOUNG: No, we haven't.

MR. ROSEN: So how are you going to do that?

MR. STROUD: Let me give you some information. I looked at the long range plan. My name is Mike Stroud from Entergy Nuclear. In our long

range plan, we have money approved for the head material and to place the order for the head. In the long range plan right now, it's scheduled for 2008 at the earliest. It could go past that, but right now the schedule says 2008 is the earliest.

MR. ROSEN: So 2008 and in between now and then, you are going to make some modifications to the existing head configuration to allow better access.

CHAIRMAN BONACA: For inspections.

MR. ROSEN: For inspection. Will you be able to do bare metal visual on the majority of the surface?

MR. COX: That's the intent of the modification, is to modify the shroud to allow better access. I don't know if that is going to allow 100 percent. I just know that that modification is being worked on.

MR. ROSEN: We'll come back to this when we --

CHAIRMAN BONACA: Okay. For all of those anxious for a break, raise -- no, you don't have to raise your hand. We're going to have a break now and be back here at 3:25.

(Whereupon, at 3:10 p.m. a recess until 3:25 p.m.)

CHAIRMAN BONACA: Let's get back into session and the next presentation has to do with Aging Management Review.

MR. SUBER: Okay. Thank you. Now, we're going to move on to the Aging Management Reviews. As mentioned previously, the applicant submitted its application using the standard LRA format. In preparing its application, Entergy credited the GALL report and submitted supplemental information containing previously approved staff positions. In Section 3, the staff documented its review of the Aging Management Programs and evaluation of Aging Management Review results that were submitted by the applicant.

MR. LEITCH: A question about that.

MR. SUBER: Yes, sir.

MR. LEITCH: We received a supplement, a supplemental SER section, 3.0.3.1., reactor vessel head penetration.

MR. SUBER: Yes, sir.

MR. LEITCH: We got that at a different time than the rest of the draft SER. Is that an integral part of the SER or is that proposed or what is the status of that supplemental document?

MR. SUBER: Yes, sir. That is an integral

part of the SER. It was inadvertently omitted from this section.

MR. LEITCH: Okay.

MR. SUBER: From 3.0.

MR. LEITCH: Okay.

MR. SUBER: Yes, sir.

MR. LEITCH: I noticed a couple of typos. Would you be the right one to discuss those with? I just want to --

MR. SUBER: Yes, sir.

MR. LEITCH: -- talk about those offline. When we're done here, we can talk. It's nothing significant.

MR. SUBER: Okay.

MR. LEITCH: It's just a couple of word processing things.

MR. SUBER: Yes, sir.

MR. LEITCH: Okay. We'll talk about that.

MR. SUBER: Okay. In this part of the presentation, I will briefly summarize the staff's findings for the sections that are displayed on this slide.

In Section 3.1, the staff documented its review of the reactor vessel, internals and reactor coolant system. As discussed previously, a license

condition is being issued for the Reactor Vessel Surveillance Program. This license condition is similar to the one issued for Farley and, essentially, requires the applicant to submit changes to its capsule withdrawal schedule or storage requirements to the NRC for review and approval.

Three AMPs had commitments added to them as a result of the staff's review. The Alloy 600 Program, the Reactor Vessel Internals Cask Program and the Reactor Vessel Internals Stainless Steel Program all have commitments for the applicant to submit the programs to the NRC for review and approval 24 months prior to entering the period of extended operation.

DR. FORD: Excuse me. Will this be the only time we talk about Section 3.1?

MR. SUBER: Pardon me?

DR. FORD: Is this the only time we will be talking about Section 3.1?

MR. SUBER: Yes, sir.

DR. FORD: Could I ask a question about the welded core barrel? You mentioned earlier on or you intimated earlier on that there was a question about the inspectability of those welds. Is that correct?

DR. KUO: Jim Medoff.

DR. FORD: When you were talking about -- when Mr. Rosen asked a question about the vessel head, you said it would be a few years away and you also said it would be at that same you will be looking at the question of the inspectability of the welded core barrel. Did I hear you right?

MR. YOUNG: This is Garry Young. The Inspection Program for the core barrel is part of the Reactor Vessel Internals Program.

DR. FORD: Yes.

MR. YOUNG: And that's one of those programs that's still being developed based on industry guidance. So there is some issues about what type of inspection and, you know, what's going to be an acceptable inspection and what will be an acceptable methodology, but that's part of these industry efforts to come up with an Inspection Program.

MR. COX: This is Alan Cox. The comment I made earlier was dealing with the inspection or the inspectability of the outside of the reactor vessel head, the penetrations.

DR. FORD: Oh, okay.

MR. COX: There is a shroud. There is a shroud around the outside of the vessel.

DR. FORD: I misunderstood.

MR. COX: That restricts the access to that.

DR. FORD: But getting back to your comment about the core barrel, you know, as you know, at the high fluencies that we might expect during license renewal period, it is perfectly possible for you to get cracking of that highly radiated stainless steel component. So we are going to wait. You had a commitment, I guess, to wait until MRP or somebody comes out with an Inspection Program for that component?

MR. YOUNG: Well, part of the issue here is that we don't have any specific guidance on what is an acceptable method for doing the inspection, the inspection technique. So through the industry effort, such as the Material Reliability Program and the owners groups, they are working to come up with this and then to work through the NRC to get agreement on what is an acceptable method and inspection technique, and that is what hasn't happened yet. That is still being developed.

DR. FORD: And is the staff asking a commitment from the licensee to adhere to such a program?

DR. KUO: Dr. Ford?

DR. FORD: Yes?

DR. KUO: Jim Medoff, staff of Division of Engineering, will answer the question.

MR. MEDOFF: This is Jim Medoff of the Materials and Chemical Engineering Branch. I was out on materials engineering and I was one of the reviewers for the Arkansas application, including the two RV Internals Programs.

Because the RV Internals Programs have not yet been developed and finalized, what we requested from the applicant was some commitments on it. The commitment that we received from the applicant and we agreed upon was a commitment to submit both of the Internals Programs to the staff for review and approval 24 months prior to entering the period of extended operation, and that program is to include the inspection plan for all their RV internals, so it will allow us to get -- we figure two years should be a sufficient time to review the programs.

DR. FORD: Thank you.

MR. SUBER: After reviewing the LRA, responses to staff RAIs and supporting documentation submitted by the applicant, the staff concluded that the aging effects of the reactor vessel internals, RCS

pressurizer and steam generator components will be adequately managed for the period of extended operation.

In Section 3.2, the staff documented its review of the Engineered Safety Features System. The staff concluded that the aging effects of the emergency core cooling system, containment spray system, containment cooling system, containment penetration system and hydrogen control system will be adequately managed for the period of extended operation.

In Section 3.3, the staff documented its review of auxiliary systems. As a result of the staff's review of (a)(2) components, a one-time inspection AMP was added to the applicant's Aging Management Program. The one-time inspection will be consistent with the GALL one-time inspection AMP XI.M32.

In addition, in a Fire Protection Review, the fire protection system for ANO-1 and ANO-2 are common systems and a 100 percent review was performed to determine its adequacy. The staff concluded that the aging effects of the auxiliary systems will be adequately managed for the period of extended operation.

DR. FORD: We brought this question up before about the fire protection, and I gave the question about corrosion of the carbon steel piping, but the answer, I wasn't too sure as to what that answer was. The question was how effective is the fire protection system if you have corrosion of the carbon steel piping, which will clog up and does clog up the nozzles? When you say the fire protection system is adequate, does it take into account those physical phenomena?

MR. SUBER: Okay. I would have to defer that question to Mr. Richard Difert.

MR. DIFERT: I'm Richard Difert. I'm fire protection on staff and I did perform the review for ANO Unit 2. The programs will determine whether or not there is corrosion in there. If there is, then it will be treated and managed. I guess in my 20 plus years of experience in fire protection, I really haven't seen corrosion in systems that are being serviced that will go to that extent, sir.

MR. SIEBER: Maybe I could add a little bit to it.

DR. FORD: Please, Jack.

MR. SIEBER: The sprinkler loops are, basically, static systems. There is no flow.

DR. FORD: No.

MR. SIEBER: And so when you fill them and put water in them, there is oxygen in the water, but that is immediately or not immediately, but soon eaten up in the process of developing a fine film of corrosion and then the oxygen is gone, and so there is no mechanism to generate more oxide films.

Where you find a fair amount of corrosion is in systems that leak like your yard loop piping where you have bushings and so forth, and there you are replenishing that oxygen supply, and so you get a larger corrosion build-up. And usually, a hydroflush once a year or twice a year is sufficient to remove that kind of corrosion.

DR. FORD: The reason why I bring the question up, and I have brought it up before on other license renewal applications, Jack, I agree entirely with the physics of your observation. However, I have heard from some operators that they do see clogging of the fire sprinklers by that same phenomena.

And so I'm getting two inputs and I'm trying to work out, you know, which is the more general observation. I hear two of you saying it never occurs and, yet, I have heard someone say it does occur. But anyway, I have brought the question

up and you guys have got no problem with it. Okay.

MR. SUBER: In section 3.4 --

MR. YOUNG: Yes, I can offer a little addition on that. This is Garry Young again. The part of the Aging Management Program that we credit for the fire protection system is a periodic flushing checking of the system, so that if there were a situation where the corrosion products were breaking loose and building up such that you would have nozzle clogging, that would be identified during this periodic testing and then corrective action would be taken to address that.

DR. FORD: Okay.

MR. YOUNG: So we do. In fact, that is part of the consideration of the aging management.

DR. FORD: Okay. Is this service water that is used in the fire protection?

MR. SIEBER: No.

DR. FORD: No?

MR. YOUNG: It's the same water. It's lake water.

MR. SIEBER: It just comes out of the river or a lake.

MR. YOUNG: It's not actually --

DR. FORD: Oh, so you could have things up

coming --

MR. YOUNG: It's not in our service water system, but it is lake water, which is the same water in the service water system.

MR. SIEBER: Yes.

DR. FORD: Okay.

MR. CRANSTON: This is Greg Cranston. Also, as a general comment in conjunction with our reviews for operation experience, which we cover for all the Aging Management Programs we look at, we do look at their Condition Reports that may have surfaced in that area to see if there has been any past history of problems, which would pick up things like, you know, the plugging of sprinkler heads and things like that. So that is part of our general review that we do in conjunction with our on-site visits.

DR. FORD: Okay.

MR. SUBER: In Section 3.4, the staff document is reviewed of the steam and power conversion system. The staff concluded that the aging effects of the main steam, main feedwater and emergency feedwater systems will be adequately managed for the period of extended operation.

In the review of Section 3.5, the intake canal's structure was in scope for license renewal,

but had no aging effects requiring management. In the course of the staff review, the staff did identify aging management effects requiring management, and the applicant proposed the Structural Monitoring Program to manage the aging of the intake canal structure.

MR. ROSEN: And I think you said it correctly. I think the slide needs a little bit of word editing.

MR. SUBER: Yes, sir. This is something that has been brought to my attention. Okay.

With respect to the aging management of inaccessible concrete, as was discussed earlier, the soil/water environment at ANO-2 is non-aggressive. However, the applicant has elected to use the Structures Monitoring Program to manage the aging effects as if the environment were aggressive.

DR. FORD: What does that mean physically? Going back one slide, what does it mean when they say they are going to manage it as if it were aggressive? They are going to inspect or what physically does it mean?

MR. SUBER: John, can you explain the Structures Monitoring Program?

MR. MA: The reason they could not --

DR. KUO: Give your name, please.

MR. MA: My name is John Ma from Division of Engineering. I'm a structural engineer. Originally, they tried to monitor. We want them to monitor the water and they told us they plugged all the wells already, so they cannot really monitor the water anymore, so they just assume the water is aggressive, so they try and use the Structural Monitoring Program to manage it.

Now, how they do that is actually their Structural Monitoring Program normally is a visual inspection. So you inspect the concrete. If the concrete has cracking or scaling, then it's an indication of bad environment effect. That's what it is.

DR. FORD: Okay. So it's just looking at the concrete to see if it is spalled off the rebar or whatever?

MR. MA: Right.

MR. ROSEN: This is subsurface monitoring?

DR. FORD: No, it's just --

MR. SIEBER: The subsurface is usually opportunistic.

MR. ROSEN: Where do they monitor, right at the surface or do they dig down some?

MR. MA: I believe mainly it's the

surface, but underground if they do excavation for some other reasons, they will do the inspection as well.

MR. ROSEN: See, if you're just monitoring at the surface and you're worried about aggressive groundwater, it sounds like you're not going to see it at the surface. You have to go down some way below the surface to the water table. Now, I understand the water table is probably fairly high at this site, but maybe somebody from the applicant can expand on that.

MR. AHRABLI: My name is Reza Ahrabli with Entergy. As Mr. John was mentioning, that we did choose to go ahead and set up our -- we will assume that water will become aggressive in such a way that we will go ahead and monitor that for the aging effect.

We already have a program in place, which is structural monitoring, and the fact that this subsurface or below surface, the water content, whatever the content of the water actually is similar of what we have in the lake water and we do have the bays, the service water bays, which were all concrete, reinforced concrete, so they are exposed to similar kind of water that they would have been exposed if it is sub, below ground level.

So indication of that condition and also the existing like, Mr. John was mentioning, opportunistic inspection, if it becomes available, then that will give us an indication as to if you have any aging effect or not.

MR. ROSEN: So basically, you are going to use the condition of the concrete in the service water bays below the level of the service water itself as a surrogate for subsurface structure condition unless you have an opportunistic inspection, you have to dig down for some other reason. Is that correct?

MR. AHRABLI: Correct. However, again, we feel like we have enough evidence by condition of the bays, which is exposed just about to similar kind of water, that would give us an indication or clue that we are having a difficulty or not.

MR. ROSEN: How often do you water those bays and get down?

MR. AHRABLI: Just about every outage, not necessarily all the bays, but one of the bays at least gets to be looked at.

MR. ROSEN: By de-watering?

MR. AHRABLI: That's correct, by de-watering actually, pumping it out and then channel to the other bays and then doing an actual visual

inspection, correct.

MR. ROSEN: Okay. Thank you.

MR. AHRABLI: Thanks.

MR. SUBER: As a result of the review, the staff concluded that the aging effects for structures and structural components, of course, will be adequately managed for the period of extended operation.

In Section 3.6, the staff documented its review of the electrical and instrumentation and controls. Power transmission conductors were added by the staff's review. However, no aging effects requiring management were identified. Consequently, the staff concluded that the aging effects of the insulated cables and connections, phase bus switchyard, high voltage insulators and power transmission conductors will be adequately managed for the period of extended operation.

As previously mentioned, the ANO-2 license renewal application review was conducted as part of a pilot program for the revised safety review process. Entergy was the first applicant to fully utilize previously approved staff positions in its application.

Mr. Greg Cranston is here to discuss the

audit and reviews associated with the new process and describe how the staff evaluated the previously approved staff positions cited in the ANO-2 license renewal application. Mr. Cranston?

MR. CRANSTON: Thank you. In looking at the Aging Management Program, we did this at the site, and what I have identified on the slides are the four main categories. In conjunction with the numbers that were brought up earlier about the number of Aging Management Programs with a total of 33, in the other report, as was pointed out, we looked at 26.

Those are the 26 that the Audit Team on-site reviews. The remaining seven were also looked at and they were looked at by the Division of Engineering here in headquarters. So basically, all the Aging Management Programs were, in fact, reviewed by staff.

Also, previous questions related to the flow-accelerated corrosion in the Buried Piping Aging Management Programs, I wasn't intending originally to talk about those, but I will talk about them at the appropriate spot in my presentation today to give you some information on those.

DR. FORD: Thank you.

MR. CRANSTON: The applicant had briefly discussed the use of NRC previously approved

precedents. We used that information as supplementary information that is provided by the applicant. We used it as a road map or a reviewer's aid. And as was mentioned previously, it is not part of the license review, license application, and we have to review the basis.

What we find is when we're given the information at the site as far as why the applicant has cited a particular precedent, we also have the basis documents associated with it and tables, which cross-reference their past precedent codes with the specific plants or their bases as far as where they obtained that information.

And then we can look at that information and make sure that it's appropriate for the particular AMP we're looking for, that the program is bounded by the conditions for which we're evaluating and approving, and then we also look at the program as a whole using the past precedent information, as well as what is provided in the Aging Management Program itself to make sure that it meets the Standard Review Plan program elements.

So that's how we use that information, and we really kind of review the Aging Management Program the same whether or not past precedent information is

used or not, except we do verify that the past precedent information is applicable and appropriate for that particular Aging Management Program.

The first category is are Aging Management Programs consistent with GALL? The example up here, I'll get to this in a minute. Before I do that, the Flow-Accelerated Corrosion Aging Management Program was also an example of an Aging Management Program that was consistent with GALL.

What we do as a team is we do talk to the applicant's technical staff. We look at their engineering programs and this is an existing program, and we looked to see how they are currently managing it. For example, what my project team did in this case was looked at over 30 examples, we picked the main feedwater system, 30 examples of feedwater system components for which wall thinning is predicted using an EPRI-approved Flow-Accelerated Corrosion Program software.

We also look at the results of ultrasonic testing that they have done in conjunction with actual measurements to verify that the predicted values are conservative in relation to the actual measurements that they have perceived. So we actually do get in and verify that things are working in those areas.

We also look at operating experience and, in this particular case, we noticed that where they did have wall thinning concerns, they had replaced the pipe with materials that are resistant to flow-accelerated corrosion. So it looked like their program was effective from that standpoint, too, that they are finding and fixing areas and maintaining the systems, and this was in conjunction with a review of their Corrective Action Program in the areas of flow-accelerated wall thinning and corrosion to make sure that it looked to us like the program was being effectively managed.

The example that I have up here is another example of an Aging Management Program that is consistent with GALL, structured monitoring of masonry walls. It's consistent with the GALL AMP, the Masonry Wall Program. One thing we noted here, the reason I wanted to point is out, is, again, as we started to talk to the people involved with the program and see what was going on, we noted that they had committed to an initial baseline examination, but it had not been documented.

And as we dug into it more, we found out that the first five year reexamination had not been performed, and that they did not have any records to

verify that the people doing these walkdowns had training.

So the applicant immediately generated a Condition Report to identify the issue and resolve it in conjunction with their Corrective Action Program. So occasionally, when we do some digging, we do find some discrepancies even though this is relatively rare.

MR. ROSEN: Did they identify the cause, the root cause of that deficiency?

MR. CRANSTON: That would be done in conjunction with their Corrective Action Program.

MR. ROSEN: Did they identify it?

MR. CRANSTON: I would have to defer that to the applicant.

MR. AHRABLI: I can address it. Again, this is Reza Ahrabli. This year was presently just to re-identify the fact that we missed a first five years' re-exam, and as far as what was the root of missing that inspection was the inspection was performed at the five years interval. But the time that the front cover sheet of the calculation, there was the engineering report was signed. The program owner, at the time, he had calculated his time from the time that that thing was signed, the front cover

sheet. But the front cover sheet was signed actually two years later after the inspection was performed.

So by just a simple mathematical error assumption by that date, they were under the impression that the inspection will not come due for another few months. So once we looked at that, we realized that it was a mistake, so realistically should have been performed. So it was a matter of just a wrong date picked up for adding values to it to come up with the next inspection time, so that's how it was missed.

DR. FORD: Could I just go back to the FAC?

MR. CRANSTON: Yes.

DR. FORD: Because I assume you're not going to talk about FAC again.

MR. CRANSTON: Yes.

DR. FORD: It's rather high on my observation list because of this Japanese incident. And my question really is to what depth do you look at how well they are performing their procedures? For instance, I have been told when using CHECWORKS, you know, you examine the wall thickness and then, at some later date, you measure the wall thickness again to see whether the predicted versus observed thinning has

occurred.

I am also told that, in some cases, they don't always measure the wall thickness in the same spot. Now, I'm sure that must be a very odd occurrence. It's not a general occurrence. But would your examination of their procedures detect such a thing? To what depth do you examine their procedures, their actual operating procedures?

MR. SUBER: Okay. That is probably more of an implementation question than it is a procedural question.

DR. FORD: Well, it has a big impact when we're talking about the effectiveness of a program, an Aging Management Program. I don't care whether you talk about it as implementation or whatever the word you use is. Is the program that is spelled out in black and white on some SOP, is it, in fact, done that way?

MR. CRANSTON: I think the general answer would be in conjunction with implementing procedures, we do that on a sample basis. We don't do every implementing procedure for every program that we look at.

In this particular case, we did decide to dig a little bit deeper. As I said, we looked at more

than 30 examples of components where they had had predicted values and they had measured values. Specifically, I don't know if we verified that the measured locations were exactly the same. Robert Hsu was part of the Audit Team. Do you have any additional information?

MR. HSU: Yes. Usually, the applicant -- this is Robert Hsu, okay, Audit Team. The applicant doing the FAC Program, they have agreed, every 1 inch is agreed, so they always measure on the same point, an agreed point, and they use the CHECWORKS to do the prediction. And as far as their operating, they put an extra 10 percent.

Like if they measure this, the first point and the second point, they calculate the wear rate, and in that prediction trending, they add extra 10 percent as their wear rate, and then they trend. And we did ask for the effectiveness, to ask them to show us what is still effective. They always show us that the trend value is conservative. And we did verify. They did present that main steam system data to us.

DR. FORD: Okay.

MR. SIEBER: One of the interesting things is when CHECWORKS says you have to do an examination in this area, they do lay out the grid in the process

of doing it. You have to remove insulation, do a surface prep, lay out the grid, make the examinations, which may be 100 points, and then they re-insulate and maybe they examine it at the next interval.

And when you take the insulation off, that grid is gone. On the other hand, it's such a fine grid that you aren't missing anything. You know, you know where you are from the weld joint to the measurement area, and you end up with a profile as opposed to a single point.

DR. FORD: Okay.

MR. SIEBER: And I always considered that as adequate.

DR. FORD: Okay.

MR. CRANSTON: Now, the next category, the Aging Management Programs that are consistent with GALL with exceptions. The AMP that's up there is diesel fuel monitoring. And again, before I get into that, buried pipe was also in the same category and a question came up, I think, from Dr. Rosen in conjunction with that.

As you pointed out, as we discussed earlier rather, there was a couple of exceptions to that particular Aging Management Program. One had to do with tanks, because they didn't have any buried

tanks, and the second exception that was taken was that the buried components would only be inspected when excavated during maintenance activities, rather than on a periodic basis.

As stated earlier, the basis for that was that we looked at the operating history for both units and noted that they had quite a history of doing excavating such that there was enough inspections to show that they were getting a good sample, and the results of those inspections showed that there was no significant degradation for the buried piping. And also, the concern was that if we required just digging periodically just to see what was going on, you could actually do more harm than good with the excavation that was going on.

The second part of the question was is that being addressed in the GALL update, and the answer is yes, that that is being factored into the GALL update to not require only -- to take advantage of the fact that opportunistic inspections are adequate in order to verify that your buried piping is holding up properly as far as that's concerned.

MR. ROSEN: See, that wouldn't be my preference. That wouldn't be the way I would prefer to do it. I would prefer something like if you think

buried pipe inspections are necessary, you just say in GALL you must expose X number of feet of pipe in X number of locations every Y years, and you may take credit for opportunistic inspections if they occur within the interval and meet these criteria.

DR. KUO: Right.

MR. ROSEN: Rather than the other way around, which is kind of like more permissive.

DR. KUO: I understand, and that's why I said earlier that it's on a very case by case basis as far as opportunistic inspections are concerned. In this case, our team reviewed their operating experience and, apparently, they had many times that they are digging out these things.

MR. ROSEN: Yes, I heard that, P.T.

DR. KUO: Yes.

MR. ROSEN: I'm just saying if you're thinking about rewriting that section, you might think about the other way around. I think the other way around is more certain and more -- well, it's just more certain.

DR. KUO: Okay. We'll take that into consideration.

MR. CRANSTON: The example that's on the slide is the diesel fuel monitoring. The exceptions

that the applicant have taken was that they used fewer additives. They had used only the ASTM Standard D 1796 and not 2709. They used a smaller filter pore size in conjunction with filtering the fuel, and they did not do ultrasonic measurements of tank bottoms.

We reviewed those exceptions and found out that they used the vendor-recommended additive package, which has proven to be quite effective for them and it does include biocide and oxidation inhibitor additions, and they have shown no evidence of any problems with the fuel based on using the vendor-recommended packages. As it turns out, the ASTM 1796 applies to the viscosity of the oils used at Arkansas Unit 2, but the second standard does not. The smaller filter pore size we found acceptable, because it was more conservative.

In conjunction with the tank bottoms, they are mounted on a raised concrete foundation and sealed. Actually, there is a seal between the tank bottom and the concrete to prevent water intrusion. And in conjunction with that, the accessible tank external surfaces are visually inspected and they do drain down the tanks periodically and do a complete internal surface inspection. Based on previous experience that we looked at, there was no tank bottom

problems indicated, so we felt that that was an acceptable exception to take.

MR. SIEBER: Does that mean that the GALL AMP should be modified, because the wrong standard is referenced?

MR. CRANSTON: Well, in this case, we're looking at the specific plant as far as the exceptions where they had used a vendor-recommended package. Other plants may or may not use these particular additive packages.

MR. SIEBER: I'm speaking directly to the ASTM standard that is referenced.

MR. CRANSTON: We have found that, based on viscosity that other plans have used, that only one of those standards applies, but I would have to check to see if there are cases where some plants do use the other standard, the 2709, so I will have to check into that. I don't know if that's consistent for all times.

MR. SIEBER: Okay.

MR. COX: Greg, this is Alan Cox. I think on the standards, if I recall correctly, the two standards that are referenced in GALL are for different viscosity ranges of fuel oil and one or the other applies. The way GALL was written, it used an

"and" between them.

MR. CRANSTON: Yes.

MR. COX: You said since we don't use one, we only use the one that applies to our fuel, that we took an exception. We tried to be conservative in most of these cases when we identified things that might be construed as exceptions even though, I think, the intent of GALL was that you use the one that applies for your fuel oil. I guess if there could be a clarification, it would be to make that a little plainer, that one or the other of those standards should apply.

MR. SIEBER: That would be a change the staff might want to consider.

MR. COX: Yes.

CHAIRMAN BONACA: Just in order to repeat, you say an ultrasonic measurement of tank bottoms is a program exception. It's not an exception, I mean, if there are no buried tanks, right?

MR. CRANSTON: Well, the words of the GALL don't differentiate between buried or not buried.

CHAIRMAN BONACA: I understand that, but that's why, for example, I got tricked by reading the SER into asking the question, because I read that's an exception we're making to GALL. I don't think it's an

exception in the sense that if you have no buried tank, you know, you don't inspect.

DR. KUO: It's not applicable. It is not applicable.

CHAIRMAN BONACA: That's right. No, I'm saying that at times, you know, and I see it here now again as a program exception. Well, it's not. It's not applicable. All right.

MR. COX: This is Alan Cox again. I think we're mixing programs up. The Underground Tank Program --

MR. SIEBER: That's EPA.

MR. COX: -- is a different program. The Fuel Oil Program is what I'm talking about here, and it actually does call for a UT examination of the tank bottoms in the GALL Program.

CHAIRMAN BONACA: So this is not the B.1.4. This is the B.1.7.

MR. COX: Right.

MR. SIEBER: Right.

MR. CRANSTON: Okay. The next example is an Aging Management Program consistent with GALL with enhancements, and looking at the fire water system, the enhancement was that the sprinkler head inspection would be revised to be consistent with the NRC Interim

Staff Guidance.

I know the question came up earlier, are those used in conjunction with, basically, a precedent approach? And this is a case where, basically, they have deviated from the GALL, as far as the frequency of inspection, but it's consistent with the NRC staff-approved Interim Staff Guidance and that ISG 04 has been deemed appropriate under the GALL update. So for future plants, this would become inconsistent with GALL Aging Management Program. But for the period of time that we looked at it, it had to be considered consistent with enhancements.

The final AMP I was going to discuss is based on previously approved staff positions. This is, basically, a plant-specific Aging Management Program. Initially, the applicant had characterized the cast austenitic stainless steel AMP as a consistent or rather as a plant-specific --

MR. SIEBER: Precedent.

MR. CRANSTON: Plant-specific based on precedent. It was a new program. When we took a look at it and the past precedent that was cited, we felt was inappropriate. That had been used at a previous plant for a unique situation, but we didn't feel it was applicable to the components for Arkansas Unit 2,

so we had -- and this is another advantage of having the audits on-site where we can sit down and discuss the situations face to face.

After discussing it, we reached a mutual agreement that this would -- that they would modify their program to be consistent with GALL and, therefore, it shifted from being a plant-specific to a consistent with GALL Aging Management Program. So they would do either the volumetric examinations or flaw tolerance evaluations in conjunction with this particular Aging Management Program for cast austenitic stainless steel.

MR. SIEBER: Is volumetric examination of cast austenitic stainless steel improved any in the last 10 or 15 years? I mean, it used to be that you didn't get very good definitive results, that's why the visual was always coupled too.

MR. CRANSTON: There's a lot of industry activity now to determine what is the best way to actually implement this program.

MR. SIEBER: Right.

MR. CRANSTON: I guess, you could almost say under development to a certain extent as far as --

MR. SIEBER: Okay.

MR. CRANSTON: -- whether they are going

to pick volumetric or flaw tolerance and exactly how they are going to do it.

MR. SIEBER: Okay.

MR. CRANSTON: The program has to be submitted to us prior to the extended period of operation when they make their final decision as to which direction to go.

MR. SIEBER: Okay. So this is under development?

MR. CRANSTON: Yes.

MR. SIEBER: Okay.

DR. KUO: And, Dr. Bonaca, I thought you earlier had a question about this previous established position. I thought this example demonstrates that. How we review this type of programs.

CHAIRMAN BONACA: Okay.

MR. CRANSTON: The AMP that is a previously approved staff position of plant-specific that I have cited here is wall thinning. The particular staff position that was previously approved here was based on the programs that -- at Unit 1. So what we did was we reviewed the Unit 1 Program. We also reviewed their Aging Management Program against the elements in the Standard Review Plan to ensure that they were completely consistent. And based on

that, accepted this as a plant-specific Aging Management Program.

MR. LEITCH: Now, Greg, I guess, what I'm hearing is when we find these past precedents, you examine them on a case by case basis to see if they are applicable to the case you are presently reviewing.

MR. CRANSTON: Yes.

MR. LEITCH: We're not into some kind of a backfit rule here expressed or implied where well, you approved this for this plant, now, we need the same kind of relaxation for a different plant. In other words, if there is good justification for it, that's one thing.

MR. CRANSTON: Right.

MR. LEITCH: But if there's not, we're not somehow committed to a particular action, because we took that action for a specific reason on a previous plant.

MR. CRANSTON: That's correct.

MR. LEITCH: Okay.

DR. KUO: If we could go, previously, we had a question about the fluence level and all that. We have Jim Medoff here. I think he would like to answer or explain the issue.

MR. CRANSTON: P.T., can we wait until we get to the TLAA?

DR. KUO: Until the TLAA?

MR. CRANSTON: Yes. TLAA, yes.

DR. KUO: Okay, we can wait.

MR. SUBER: We're almost there. Okay. After reviewing the Aging Management Review results and Aging Management Program activities, the staff concluded that the applicant has demonstrated that the aging effects can be adequately managed so that the intended functions will be maintained consistent with the current licensing basis for the extended period of operation.

Now, we move on to time-limited aging analyses.

MR. LEITCH: Just before you get into the TLAAs, I had a couple of questions about the Audit and Review Report.

MR. SUBER: Okay.

MR. LEITCH: Is that --

MR. SUBER: That would be --

MR. LEITCH: Yes. I guess at one place there on page 5-2 it speaks about the heat exchanger acceptance criteria. I guess, this is for the Heat Exchanger Monitoring Program. It says "Less than 60

percent acceptance criteria is less than 60 percent through-wall." Is that -- I mean, that just kind of surprised me that 60 percent through-wall was acceptable.

MR. CRANSTON: I can't speak to that particular number.

MR. SUBER: Okay. Well, that I can. That was actually consistent with a previously approved staff position for Unit 1 and we used the same acceptance criteria for Unit 2 that was used in the Unit 1 Aging Management Program.

MR. LEITCH: Well, you know, I guess that's kind of the issue I'm concerned about. One place we say 60 percent through-wall is acceptable, therefore, we say it's acceptable in other places.

MR. SIEBER: Yes.

MR. LEITCH: I just wondered whether 60 percent through-wall is acceptable in any case really. But, I mean, after having said that once, we just seemed to follow along.

MR. SUBER: Okay. Well, what we could do is we could go back and find out what the original acceptance criteria was based on, because I'm sure -- unless the applicant already knows. But we can find out what the original criteria was based on. But that

was why it was approved for Unit 2, because it was a past precedent accepted for Unit 1.

MR. LEITCH: Greg, Robert has some comments.

MR. HSU: You're talking about 60 percent through-wall.

MR. CRANSTON: Right.

MR. HSU: If you go through the ASME Section 11 Code, you go to I think it's 1989 Code in Appendix C, you can find they are allowing when you calculate a pipe, you can have maximum up to 60 percent. In the 1992 Code, I think, '95 Code they changed to 75 percent.

MR. LEITCH: Really?

MR. HSU: Yes. You can look in Appendix C of Section 11. But that's based on the calculated value. So I think they should meet that based on the calculated value, based on the pressure and loading for that tube.

MR. LEITCH: Okay. Okay. Thanks. I just found that number surprising, but I appreciate that clarification. Now, the other question I had was with non-EQ cables, page 5-2 of the report. It says "They are inspected where accessible and prone to adverse environment." I guess, you know, that's fine if they

are accessible. But how about if they are not accessible?

In other words, how are these areas with adverse environments determined? Do you look at suspect areas or is it a random sample? I guess I'm just not sure how you go about carrying out this program. Is the key whether it's accessible or the key whether it's an adverse environment?

DR. KUO: Dr. Leitch, can we come back to you on this one?

MR. LEITCH: Yes.

DR. KUO: The person just --

MR. LEITCH: Yes, it's in the Audit and Inspection Report page 5-2.

DR. KUO: Okay. Thank you.

MR. LEITCH: Yes.

MR. SUBER: Okay. Well, we can go on, but Mr. Knotts is here and he was part of the Audit Team.

DR. KUO: Yes, he will come up.

MR. SUBER: Okay. All right. Thank you.

MR. LEITCH: That's fine.

MR. SUBER: Okay. Okay. Now, we can move on to time-limited aging analyses. Entergy identified 11 TLAAs, 6 of which were plant-specific. The TLAAs listed in NUREG 1800 included reactor vessel neutron

embrittlement, concrete containment tendon prestress, metal fatigue, environmental qualification of electrical equipment, container liner and penetration fatigue analyses.

Next slide. It kind of speaks for itself. For the five TLAAs that were identified from Table 4.1-2, which are the five that I just read, and actually 6 other plant-specific TLAAs were identified by the applicant. For the reactor vessel and internals neutron embrittlement, three analyses were identified as TLAAs. The Upper Shelf Energy, the pressurized thermal shock and pressure-temperature limits.

Next slide. For the Upper Shelf Energy TLAA, the staff performed an independent calculation of the Upper Shelf Energy values for the reactor vessel beltline materials through 48 effective full power years.

Next slide.

MR. ROSEN: Hold up.

CHAIRMAN BONACA: Yes, wait a minute. Go back.

MR. SUBER: Okay. Go back.

MR. ROSEN: I guess I'm not persuaded that the use of 80 percent capacity factor is appropriate.

MR. MEDOFF: I'm going to address this. This is Jim Medoff again. We based our evaluation in the current licensing basis for the plant, which is 48 EFPY.

MR. ROSEN: Current licensing basis?

MR. MEDOFF: Right. That's what the rule is based on. So the current licensing basis for the current term is 80 percent capacity factor and so if you look at the PT limits or the PTS criteria, it's for 32 EFPY. When you take that up to a 60 year license period that makes it 48 EFPY.

But to address your concern, what I did today was I punched in my estimate for 54 EFPY value. I took a ratio of 54 to 48, multiplied the fluence and saw where the values came out for, at least for, RT_{PTS} and all it did was add 2 degrees. Now, they are low copper. They have low copper welds, so they are limiting materials for RT_{PTS} as one of the plates.

MR. ROSEN: How worried about RT_{PTS}?

MR. MEDOFF: Yes, worried about Upper Shelf.

MR. ROSEN: Okay.

MR. MEDOFF: I forgot to look at that, but I'll punch back the numbers and I'll get the Upper Shelf value for you, my estimate. If they don't meet

Upper Shelf and that the next surveillance capsule pulled, they have to increase the capacity factor and they don't meet 50 foot-pounds, they will have to come into the staff for an equivalent margin analysis.

MR. ROSEN: Is it just the process of just taking the ratio of --

MR. MEDOFF: I'm going to let Lambros Lois address that question.

MR. LOIS: Regarding the fluence calculation, the fact we have experience so far in the early years, the plants maybe did not have more than 80 percent. So it shouldn't have 32 for the first 40 years. Then the remaining to 54 will be 22, which is impossible to achieve, obviously. So, therefore, even at 90 percent, they can't get more than 58 effective full power years. They are only 2 effective full power years away from the assumed 48 EFPY.

The differences are small and negligible, in addition to which the rule provides that if they exceed the projected exposure and come back to us for readjustment of all parameters.

MR. ROSEN: And do equivalent margins analysis?

MR. LOIS: Yes.

MR. ROSEN: Well, why wouldn't we get the

numbers right up front? I agree, let's see, they've got the first 30 years with 80 percent capacity factor, I think.

MR. LEITCH: They say they have 26 years with 80 percent.

MR. ROSEN: So you can figure out what that is, something like 24 EFPY or 25. And then you can do the remaining years at 90 percent and figure out what that is. Tell us what the Upper Shelf Energy foot-pounds are relative to the 50 foot-pounds screening criteria, rather than make us do all that work and figure it out for ourselves and come up likely with the wrong answer or the wrong conclusion.

MR. LOIS: That is the choice of the --

MR. ROSEN: That's why we leave it to you.

MR. LOIS: That is the choice of the licensee.

MR. ROSEN: Choice of the licensee?

MR. LOIS: The 48 EFPY, yes. They choose to have that number, so eventually if they exceed that number, they are required by the rule to come back and explain what they are doing.

CHAIRMAN BONACA: Before they exceed it.

MR. SIEBER: If they get to the number, then they have to tell you.

MR. LOIS: Two years before they get the number.

MR. ROSEN: Right. Well, that may be, but I would like to see what the calculation is no matter what the licensee -- what if the licensee chooses 20 percent?

MR. MEDOFF: Mr. Rosen, I'll tell you what I'll do for you. I'll put a 25 percent conservatism in the 48 EFPY fluence, which should account for anything they are going to get at 54 EFPY. I'll see where the Upper Shelf Energy falls.

MR. ROSEN: Well, you've got to come back on, what is it, Friday. We're going to have an interim report on Friday.

MR. MEDOFF: I'll have that value for you by tomorrow morning.

MR. ROSEN: Maybe you can do that for --

MR. MEDOFF: It will take me two seconds to punch it out.

PARTICIPANT: But the thing is that before our meeting.

MR. ROSEN: Yes, the important thing is to have it before we act, but I'm going to have -- we're going to have an interim briefing for the full committee on Friday and I would kind of like to know

the answer.

MR. MEDOFF: You'll have the value before that.

MR. ROSEN: Okay.

MR. SUBER: Both the applicant and the staff's calculation demonstrated that the USE acceptance criteria for the RV beltline will be met through 40 EFPY. Excuse me, 48 EFPY. The staff concluded that the TLAA is acceptable in accordance with 10 CFR 54.21(c)(1)(ii). With respect to --

MR. LEITCH: Another issue that I have is with this environmentally assisted fatigue. We're coming up with numbers on shutdown cooling and pressurize the surge line that are considerably above 1.0. In fact, they are like 15 or something like that. And I guess this is not the first time this has come up. I realize there is a lot of conservatism in these numbers, but what's wrong here? How come we keep coming up with these numbers that are so high and we say well, don't worry about it, not to worry. But is 1.0 the wrong number or is our methodology wrong or what's going on here? It's not really an ANO question. I mean, this question comes up repeatedly.

MR. SUBER: Mr. Hartzman did that part of the review and I think he's about to step up to the

mike.

DR. KUO: Yes, Dr. Hartzman. Dr. Hartzman is the staff in Division of Engineering.

DR. HARTZMAN: My name is Mark Hartzman. I'm with the Mechanical and Civil Engineering Department. The problem is that there are -- when one accounts for environmental effects, the fatigue curves become effective and, therefore, we get such large CUF numbers. Ordinarily, what we have done and what we're doing here is we are requesting that the applicant manage or account for these environmental effects by having a -- by using the Fatigue Monitoring Program to check on the cycles.

The cycling that is used in the fatigue calculations is often very conservative and does not correspond to the actual cycles that are measured or that are recorded in the plan. And this is one place where the fatigue calculations are helped most by the reduction of the actual cycles that the plant sees. That reduces the cumulative usage factors. In all cases, the applicants are required to assure that the cumulative usage factor by whatever means they can does not exceed 1.

So in this case, even though the numbers are very -- the number is very large to 15, it

includes a number of conservatisms which are usually-- which can usually be removed by more exact calculations and by measuring the -- or by counting the number of cycles, the operational cycles that the plant actually goes through.

DR. FORD: But surely the CUF is determined with respect to the ASME III Design Code, the current ASME III Design Code.

DR. HARTZMAN: As modified by fatigue environmental coefficients.

DR. FORD: The 2 and 20 Rule of the ASME III Code. In fact, the design life, that curve is not conservative on the basis of current -- so again --

DR. HARTZMAN: Why not?

DR. FORD: -- if it's 15, it's even higher.

DR. HARTZMAN: If one accounts for the environmental effects, that's true.

DR. FORD: Yes.

DR. HARTZMAN: However, the ASME curve is not the only factor here. There is also the amount of conservatism that is included in the act of calculating the CUF. It depends on the number of assumed transients and the correspondence cycles.

DR. FORD: Yes.

DR. HARTZMAN: And the allowables for the particular stress range between load sets. So there is, indeed, in many places where the vessel can be sharpened.

DR. FORD: I was about to use exactly the same word. These will be sharpened. Mr. Leitch has got a very good point. We've come up with a rule, not a, you know, C Rule, but we've got a procedure in which you determine a CUF value and we say 1 CUF value of 1 is the limit. And now, we're getting calculated values considerably higher and you're saying well, okay, we'll sharpen our pencils in terms of what the real cycles are, etcetera.

DR. HARTZMAN: That is right.

DR. FORD: Well, at what point, where does reality come into this?

DR. HARTZMAN: Well, reality, in one place where reality comes in is in actually determining what is the actual number of operating cycles that the plant has gone through and is projected to go through.

DR. FORD: And the allowable number of cycles, real cycles, what's the allowable number of real cycles?

DR. HARTZMAN: The allowable number of real cycles is that which causes the CUF to be 1. In

other words, we don't work in terms of allowable cycles, of allowable operational cycles. We simply or I should say they simply verify that the CUFs, the CUF components has determined from all the transients, from the cycle's correspondent to the transients, when all these components are added, they add up to or less than 1 for a period of 60 years.

MR. LEITCH: That describes five possible remedies.

DR. HARTZMAN: That is correct.

MR. LEITCH: And, you know, that seems like a reasonable approach. But my concern is if this number is 15 at the end of 60 years, what is it today?

DR. HARTZMAN: This is --

MR. LEITCH: Is it more than 1 today, right now?

DR. HARTZMAN: This is nominally. This is a nominal number. This is a number that is based on design, on design transients and design cycles assumed for each transient. That is the current licensing basis list of transients.

MR. LEITCH: But shouldn't we be seeing what that number is today and define those, one of those five remedies right now? I mean, how can it be okay today?

DR. HARTZMAN: No, no. Well, what I'm saying is that they have determined, the licensee has determined that the number of cycles is, indeed, much smaller than the number of design cycles that was used in the initial design in the current licensing basis. And that is really the basis for not -- the applicant monitors the number of cycles and he has the -- and he determines that the CUF remains less than 1. He is committed to do that.

MR. LEITCH: Right now, today, the CUF is less than 1.

DR. HARTZMAN: Is less than 1, yes.

MR. LEITCH: Okay.

DR. HARTZMAN: That is correct.

DR. WALLIS: How big is it today?

DR. KUO: Can I provide --

DR. HARTZMAN: CUF was projected to be 15 with the environmental effects.

CHAIRMAN BONACA: I understand that.

DR. HARTZMAN: Yes.

CHAIRMAN BONACA: At the end of 40 years of the current tech, that would put that -- I mean, the TLAA. What was the projected value at the end of the 40 years?

DR. HARTZMAN: Well, the licensing basis

for the analysis did not account for environmental effects and, therefore, they are all -- the CUF in all those calculations is less than 1 without environmental effects. So as far as the licensing basis of the plant is concerned, the CUF is less than 1. Now, when GSI-190 was closed, it was determined that the environmental effects would not be -- would not significantly effect the piping, shall we say, in terms of fatigue.

But, however, as a precaution, shall we say, it was decided to explore the environmental effects on the piping to preclude any potential cracking that might occur. However, the word is potential, not necessarily so.

MR. LEITCH: Yes, I mean, I just see a paradox here. On one side we're saying we ought to worry about these, maybe we ought to worry about these environmental effects. But then we worry about them and it gives an answer we don't like, so we say well, they are really not that important anyway, I mean.

DR. HARTZMAN: No, what we're saying is that these numbers can be managed, can be reduced.

DR. KUO: Dr. Leitch, can I give you a summary of historical background on this issue? This issue has been the subject of two GSIs. One starting

with 168, GSI-168.

MR. LEITCH: Yes.

DR. KUO: And then later on turning into GSI-190. When we had the GSI-168, we had the lab perform analysis on six critical locations based on the ASME Code. The conclusion was that, and this was also a subject of a commission paper, for the current 40 years, the current ASME Code curve is good enough, because they have a calculated cumulative usage factor. They are all within 1 more or less. So they are safe. To the conclusion that the closure of that GSI-168 is that for current operation, the design is okay. It's safe.

But then leave the question what about license renewal? So at the end, they created the 190. So our research office took this issue, again studied this for a couple of years. They looked at that in general, in general, this is true in general that the piping fatigue usage factor is very low. But a few critical locations that could be high. Okay. So the closure of the 190 stated that. For most of the locations of piping, the original design is still adequate. However, we want to make sure that the newly discovered environmental effect is not going to make it unsafe at the critical locations.

So the recommendation at the end of at the closure of the 190 it states that "The applicant should be required to perform analysis at these critical locations for environmental effects." And that's where we are. We are asking the applicants to perform the environmental -- I mean, the fatigue analysis using the environmental effect for the critical locations. So I think we are taking care of the safety concerns here.

DR. FORD: But you're still left with, when you say GSI-190 predicted that CUF values even at 60 years would be 1 or less, you have got values of 15. So where did that come from?

DR. KUO: Well, like I said, at most of the locations, the fatigue usage factor usually is very low even factoring into the environmental factors, it's still within 1.

DR. FORD: Right.

DR. KUO: But at the critical locations, this is not the case Okay? So the GSI-190 inclusion recommended that for license renewal, the applicant should perform the analysis using the environmental effect at critical locations.

DR. WALLIS: And what are the criteria for acceptability after he has done that?

DR. HARTZMAN: A CUF less than or equal than 1.

DR. WALLIS: So what is this 15 that keeps being bandied about here?

DR. HARTZMAN: The 15 is a CUF that one gets if one does the license and basis analysis, but accounting for the environmental effects on the fatigue curves.

DR. WALLIS: And we should forget it?

CHAIRMAN BONACA: Including an assumed number of cycles, which by far exceeds --

DR. WALLIS: Suppose you do it right, what do you get?

DR. HARTZMAN: The number of cycles is the number of cycles that was used in the design of the plant.

DR. WALLIS: Yes, but then if you do it right, what number do you get?

DR. HARTZMAN: Excuse me?

DR. WALLIS: If you do it right, what number do you get? If you do it wrong, you get 15. If you do it right, what do you get?

DR. HARTZMAN: If you do it right, it has to be less than or equal than 1.

DR. WALLIS: What is it when you do it

right?

DR. HARTZMAN: Well, when you say you do it right, it's not a matter of doing it right. It's a matter of doing realistically, shall we say.

DR. WALLIS: Okay. Well, what is the answer when you do it realistically?

DR. HARTZMAN: I just said less than or equal to 1.

DR. WALLIS: No, what is the actual number you get? I know the average is less than 1.

DR. KUO: Dr. Wallis?

DR. WALLIS: Do you get .5 or .999 recurring or what?

MR. SIEBER: You can only do it retrospectively.

DR. WALLIS: I should perhaps drop out of this, but I am very baffled by this sort of prevarication. A number is either less than 1 or it is not. What is that number and if it's bigger than 1, then we do something.

DR. HARTZMAN: In NUREG-6260 there were a number of analyses made at these critical locations, and they showed that when all the conservatives were-- where most conservatives were removed and other assumptions were made, these critical locations could

be reduced to having a CUF less than or equal to 1. So the bottom line is that the CUF has to be less than or equal to 1. That is the criterion for acceptability.

DR. WALLIS: And the question I had is is it? That's the only question I have. There is a difference between what it has to be and what it is.

CHAIRMAN BONACA: Well, the possibility is that they are going to count the number of cycles, which is supposed to be much less than this number, and when they come close to 1, they have to do some remedial actions. Now, the question I have is how frequently do you have to monitor this?

DR. WALLIS: Well, is this tomorrow or is this going to be --

CHAIRMAN BONACA: Do they know when they have to do the evaluation?

DR. KUO: Dr. Kenneth Chang may have some comments, has some comments that may resolve some of your concerns. Let's try.

DR. CHANG: Ken Chang. Since this question was brought up as a general issue, so I'm not going to address particularly to ANO-2. I'm addressing this from a general point of view. I hope this can kill this issue once and for all.

CHAIRMAN BONACA: We had the same problem with Farley.

DR. CHANG: If you allow me, I will take off my jacket, so I can talk more comfortable.

CHAIRMAN BONACA: Please, do so.

PARTICIPANT: I don't know about that.

MR. ROSEN: When you take off your jacket, you can hit somebody.

DR. CHANG: Not that far. Okay. One thing I want to emphasize is fatigue usage factor to be less than 1, that's the absolute requirement, that we have to stick to it. The applicant has to stick to it. And as far as I know, most applicants are implementing a standard approach, four step approach, but in case you calculate only usage factor to be greater than 1, then you do either replacement, repair, refine calculation or using aging management technique to take care of that.

And one thing in particular about the ANO-2 is they have a fifth one that follows the ASME in case some day ASME may put in a new curve there. You follow the curve, you can do everything hunky-dory. But let's reemphasize that part. It's nice to have, but it's only a wishful thinking at this moment.

Now, we have talking about cycle counting

over and over again, but that's not the key. Every plant has a cycle counting. ANO-2 from day one have the cycle counting. Okay. That doesn't solve the problem. What solves the problem is almost every plant decided to adopt the Fatigue Monitoring Program. Fatigue Monitoring Program is cycle counting and transient monitoring.

MR. SIEBER: Yes.

DR. CHANG: Okay. That is the key from an analyst's point of view. When you implement the Fatigue Monitoring Program like FatiguePro, Rev. 3 as is being used by ANO, and also have been used for close to 10 years, am I right? Okay. You collect a lot of data. Now, you are staying away from design transients. Design transients not only conservative in the cycles, but also conservative in the delta T and ramp of delta T. Those things are critical to resolve your fatigue problem.

Now, let me answer Dr. Wallis' question in a different way. The FEA is a factor, is a penalty factor you apply to use this factor. It's lenient. This factor is a lenient relationship with the FEA. But knowing the fatigue curve, when you reduce the delta T, when you reduce the ramp, you reduce stresses. The allowable cycle is exponentially

proportionate to the stress levels. So you reduce the severity of the transient, you increase allowable cycle by exponential order.

Okay. Another thing is we heard CUF 15. That's great, because CUF 15 is you took a number. The FEA maximize at 15.25. You cannot get more than 15.25 based on current literature.

DR. WALLIS: So it's about as bad as it could possibly be?

PARTICIPANT: That's right.

DR. CHANG: Yes. All right. Now, I believe I mentioned a couple of times, but I am not a great speaker, 15.25 is the absolute maximum. You take one number, apply it to every transient, every location, every pressure, every temperature conditions. Now, you have a critical location, you have a critical transient. You take that transient. You develop a transient-specific FEA. That number will come down right away to 6, 7, 8, that order.

Now, within that transient, you take time slice. At the moment when the transient is most severe, you cut the time slice, consider all the time parameters. That FEA will come down to 2, 3, 4. All right? So there are two aspects.

The applicant is required to verify, to

demonstrate that their usage factor at any point during the extended period of operation to be less than 1. You are obligated to show that, and I am fully confident every applicant is doing the refined calculations before they jump in to replace, repair an aging management.

MR. SIEBER: Yes.

DR. CHANG: Just that calculation is progressive. When you are accumulating more data, you are doing more refined calculation. And that less than 1, you can bet they always have one value when you move into the extended period of operation. Did I explain my point?

CHAIRMAN BONACA: Yes, you did.

MR. SIEBER: Yes.

CHAIRMAN BONACA: The question I have is--

PARTICIPANT: I'm afraid you'll take your shirt off.

CHAIRMAN BONACA: -- when they come close to 1, how frequently they have to re-perform these calculations to make sure they don't exceed 1?

DR. CHANG: Yes.

CHAIRMAN BONACA: Since it is not an obvious number, I mean.

DR. CHANG: Right. That's a very good

question. Before the end of current licensing period, the applicant got to do a fatigue update calculation of fatigue usage factor to demonstrate at the end of the current life, based on the best fit of the monitoring data, to cover the period, 20 year period already gone by and plus the next 20 years. At that end of 40 years, you are less than 1. Then you can do all your refined calculations. They are obligated to show at the end of the 40 year life, it's less than 1.

CHAIRMAN BONACA: Okay. And now, you get into the period of extended operation.

DR. CHANG: Yes.

CHAIRMAN BONACA: And when do you perform the calculations to verify they are still below 1?

DR. CHANG: Normally when somebody implement a fatigue probe, they have a program to say every so often they do an updated usage factor calculation. I do not know whether ANO-2 has that program and has that frequency or period established. Garry, you may be able to talk a little bit about that.

MR. YOUNG: Yes. This is Garry Young. I can't tell you exactly what the frequency is, but I know that it's normally done on a refueling cycle basis or more frequent, but whenever we do the

calculations, we have to look at the interval to the next update to make sure that we don't exceed 1. So whatever interval we pick, we have to show that we won't exceed 1 at the next interval.

DR. CHANG: In the next cycle.

MR. YOUNG: Or take corrective action at that time.

CHAIRMAN BONACA: Okay. So you do have a projection?

MR. YOUNG: Yes, we always have a projection?

CHAIRMAN BONACA: That capability that you can count on.

MR. YOUNG: Yes.

CHAIRMAN BONACA: That would allow you not to exceed the 1?

MR. YOUNG: Yes.

DR. CHANG: And this is very much in line with another plan I have done audit. They also do that every time. Every outage, they collect the data, refine the calculations, project it for the next fuel cycle and progressively. And if getting so close to 1, then they may have to do a refined calculation for all the back history. The point is to assure in the next period, next fuel cycle, it's not going to exceed

1.

MR. SIEBER: So you count on having just one more transient and if you have that transient, you shut down and take remedial action?

DR. CHANG: Theoretically speaking, that is the case, but practically, normally it doesn't happen that way.

MR. SIEBER: Right. It hasn't so far.

DR. CHANG: Right.

DR. FORD: Just to come back to Professor Wallis' initial question. What is the current value of CUF for this critical component, and it has to be something like near .8. Is that right?

MR. RINCKEL: This is Mark Rinckel. The CUF for the surge line right now is .98. So you multiply that times the environmental factor, you're up to 15.

PARTICIPANT: After 20.

MR. RINCKEL: And what ANO is doing now is they are monitoring their design transients with FatiguePro. Okay. So they are counting all their transients and that's what's required for the design. All right?

One of the things that they did in the Environmental Study is they said that we don't have to

take 500 heat-ups and cool-downs over 40 years. Like ANO right now is at 85. And so what they did is used fewer values, calculated what they thought the usage factor would be at 40 years and, you know, in all cases with environmental factors it was less than 1. And that is why they applied it. They said when you go to 60 years, you have got to look at this.

PARTICIPANT: It was 25 years at 80 percent or 35 years at 90 percent.

DR. KUO: Any other questions?

PARTICIPANT: It's so close to continue to do anything different, go to 90.

MR. SUBER: Should I continue?

MR. SIEBER: Yes.

MR. SUBER: Okay. With respect to pressurized thermal shock, the staff performed --

DR. KUO: Any other questions on fatigue?

CHAIRMAN BONACA: No, that's fine, I think, that information.

DR. KUO: Can Greg go on?

CHAIRMAN BONACA: Yes.

MR. SUBER: With respect to pressurized thermal shock, the staff performed an independent calculation for the referenced temperature pressurized thermal shock values of the reactor vessel beltline

materials through 48 EFPY. Okay. Both the applicant and the staff's calculations demonstrated that the applicable screening criteria for the limiting beltline reactor vessel material will be met through 48 EFPY. The staff concluded that the TLAA is acceptable in accordance with 10 CFR 54.21(c)(1)(ii).

PARTICIPANT: It's Upper Shelf Energy.

PARTICIPANT: Can you remember what the guide said?

DR. KUO: Greg?

MR. SUBER: Yes, sir?

DR. KUO: Jim Medoff had some comments about the previous questions.

MR. MEDOFF: No. As I told them before, I'm going to add a 25 percent margin on the fluence to account for 50. I will punch out every material for RT_{PTS} and for Upper Shelf.

DR. WALLIS: So when the staff calculated this RT, they presumably used the same formula that Entergy used.

PARTICIPANT: Correct.

DR. WALLIS: The same answer.

PARTICIPANT: Yes, sir.

DR. WALLIS: How well did you know the fluence when you did that?

MR. MEDOFF: How well did we know the fluence?

DR. WALLIS: How accurately did you know the fluence that you used to calculate this value?

MR. LOIS: This is Lambros Lois, Reactor Systems. The acceptability of fluence calculations, it complies with Reg Guide 1.190, which was published back in 2001 and this plant does meet those requirements.

DR. WALLIS: So how accurately did you know the fluence?

MR. LOIS: The accuracy required is plus minus 20 percent, one sigma.

DR. WALLIS: 10 percent accuracy, at that point?

MR. LOIS: 20 percent, one sigma.

DR. WALLIS: Is that achievable, 10 percent accuracy?

MR. LOIS: 20 percent.

DR. WALLIS: 20, 20. Okay.

MR. SIEBER: Yes.

MR. SUBER: Section 4.3 contains the staff's evaluation of metal fatigue. Two analyses were affected by metal fatigue. The first analysis was for ASME Class 1 components. The staff's review

found that the applicant supported its claim that the number of projected cycles will be well below the number of assumed design transient cycles. The staff concluded that the analysis remains valid under 10 CFR 54.21(c)(1)(i).

The second analysis affected by metal fatigue was related to ASME Non-Class 1 piping. The staff concluded that the existing analysis remains valid under 10 CFR 54.21(c)(1)(i). For ASME Non-Class 1 components, no fatigue evaluations were required.

Section 4.4 contains the staff's evaluation of the TLAA for environmental qualification of electrical components. The applicant's EQ Program is an existing program established to meet the ANO-2 commitments for 10 CFR 50.49. The applicant's program is consistent with GALL X.E1 Program for environmental qualification of electrical components. The staff concludes that the applicant's EQ Program will adequately manage the electrical equipment in accordance with 10 CFR 54.21(c)(1)(iii).

DR. KUO: Greg?

MR. SUBER: Yes, sir?

DR. KUO: There was a question earlier about the non-EQ tables. Am I correct?

MR. SUBER: I believe so.

DR. KUO: Yes. And Duc is here to answer the question.

MR. SUBER: Okay.

MR. NGUYEN: Yes. There were questions about the inaccessible cable and connector. Yes. This program is written for --

MR. LEITCH: Particularly with the aggressive environment.

MR. NGUYEN: Yes, yes, yes. This program have provision that if you found a problem with the accessible cable, first you have to expand the sampling, expand the sampling --

MR. LEITCH: Size.

MR. NGUYEN: -- size. Okay. For example, if you take 25 percent for sampling into five problems, then you have to expand it more than 25 percent, maybe 50 percent. And also, you have to look at the inaccessible cable would have the same environment that you found a problem with. So this, I believe, the corrective action element in this program, if you got requirement, so I think that this program is adequate to take care of the aging effect of inaccessible location.

MR. LEITCH: So if you find an aggressive environment --

MR. NGUYEN: Yes.

MR. LEITCH: -- in the accessible locations.

MR. NGUYEN: Yes.

MR. LEITCH: Then you --

MR. NGUYEN: Expand it.

MR. LEITCH: Expand your sample.

MR. NGUYEN: Yes, and look at the inaccessible.

MR. LEITCH: Yes.

MR. NGUYEN: Would have the same environment, localized environment. Okay?

MR. LEITCH: So the inaccessible somehow has to become accessible?

MR. NGUYEN: Yes, yes, yes.

MR. LEITCH: Okay.

MR. NGUYEN: But if the inspection see no problem, you don't need to expand it.

MR. LEITCH: Yes. Okay.

MR. NGUYEN: Okay.

MR. LEITCH: I understand.

MR. NGUYEN: So this program, I think, have provision for that, to take care of that.

MR. LEITCH: Okay. Thank you.

MR. SUBER: In Section 4.5, the staff

evaluated the TLAA for concrete containment tendon prestress. The applicant committed to using the containment ISI Program to manage the loss of tendon prestress in the containment building post during the period of extended operation. Based on the applicant's commitment, the staff concludes that the aging effects on the intended functions will be adequately managed for the period of extended operation in accordance with 10 CFR 54.21(c)(1)(iii).

DR. WALLIS: Now, this is going to be managed, but did you look at the actual data on tendon stress and how it has been evolving?

PARTICIPANT: Yes, we did.

MR. MA: This is John Ma from Division of Engineering. This issue was reviewed by another staff, Hans Ashar, and yesterday he was sick and he told me to take care of this issue. As far as I know, this issue is, as of today, the applicant only has one point, data point, in 1999. But the applicant has made commitment. They are going to take additional points and there will be enough points of --

DR. WALLIS: When was this built?

MR. MA: What?

DR. WALLIS: When was it built, this plant?

MR. SIEBER: '70 something.

DR. WALLIS: So there was, presumably, a data point when it was built?

MR. MA: Oh, no.

DR. WALLIS: So one knows what the tension should have been when it was built?

MR. MA: No. The reason is our reg guide allowed them to -- if there's two plants on one site, they can monitor one plant without monitoring the other plant.

DR. WALLIS: I'm just trying to get an idea of how much the tendon stress has changed over 25 years and how much it's likely to change over the years we're interested in. That's what I'm interested in, not what they are doing, but what the results have been of what they have done.

MR. MA: I think the applicant should respond to that question.

MR. AHRABLI: Reza Ahrabli with Entergy. I guess your question is, as we're trying to explain, that it was Mr. Hans had looked through the calculation we provided. In a nutshell, basically, what it is, that Unit 2, well, Unit 1, by the comparison, as you are aware, that IWL, ASME Section XI, IWL, has basically got three elements, which is

the tendon inspections, tendon surveillance and concrete inspections.

By reg guide, by similarity of both Unit 1 to Unit 2, we had performed IWL, all three elements, for the Unit 1. However, we didn't have to do that for the Unit 2, but the comparisons since were allowed. We did perform the tendon inspections and also the concrete inspections, visual inspections. However, we did not perform concrete tendon surveillance, because we used the data from the Unit 1.

When we looked through the Unit 1 data, Mr. Hans, basically, his point was that it is advisable to use the regression analysis as is identified in IN 99-10 versus what we have used in the past to demonstrate our tendon prestress forces are okay for the Unit 1.

So in summary, we have committed to use the regression analysis for the Unit 2 and also develop the curves as we go, as we gain the data, which from one point what we're talking about is the point that has been -- we have one point data, but not enough for the Unit 2.

DR. WALLIS: It's hard to extrapolate one data point.

MR. AHRABLI: Correct.

DR. WALLIS: Do you have some idea what it was when it was built 25 years before you got this data point?

MR. COX: This is Alan Cox. I think the answer to this, Reza can correct me if I'm wrong, but what we are saying is that, because of the similarity, we were using the Unit 1 data to satisfy the requirement for Unit 2.

DR. WALLIS: So maybe you have got two horses in the stable and one is healthy, the other one is okay?

MR. COX: Well, they are the same design. You know, if you are looking at the tendon relaxation on one unit, you expect to see the same relaxation on the other unit.

DR. WALLIS: Because it's the same design, the same history?

MR. COX: Right.

MR. AHRABLI: Again, it was allowed by the reg guide also.

DR. WALLIS: And when you do that --

MR. COX: The Unit 1 data --

DR. WALLIS: -- and you extrapolate, are you going to meet the criteria for the next 50 years,

five years or what?

MR. AHRABLI: Correct.

MR. COX: Right. The projections or the actual measurements on Unit 1 tracked, if I remember right, they tracked very closely to what was projected.

DR. WALLIS: So when do you run out of tendon stress?

MR. COX: I believe we predicted 60 years.

MR. AHRABLI: 60 years.

DR. WALLIS: 60 years?

MR. AHRABLI: Correct.

MR. COX: And we were still okay.

DR. WALLIS: So that's what I'm trying to look for. You have got some kind of an extrapolation with time.

MR. AHRABLI: Right.

DR. WALLIS: And you are predicting that if you go through the data some honest way --

MR. AHRABLI: And it was about the MRV.

DR. WALLIS: -- that everything will be okay for the next 60 years?

MR. AHRABLI: Yes.

DR. WALLIS: That's all I'm trying to determine.

MR. AHRABLI: It was above the minimum required value.

DR. WALLIS: Was it the final 60 years of life or no, it's over -- 60 years from day 1 in 1974?

MR. SIEBER: Yes, it worked out pretty good.

PARTICIPANT: The next 35 years.

MR. AHRABLI: Yes.

CHAIRMAN BONACA: 30 years.

MR. COX: One other thing to keep in mind is we do have the capability if their projections don't show they are acceptable, you can re-tension the tendons to correct that.

DR. WALLIS: Do the tendons lose their tension?

MR. AHRABLI: That's what --

DR. WALLIS: Why do they lose their tension? Is it because the steel creeps or because the concrete creeps?

MR. AHRABLI: Concrete creeps.

DR. WALLIS: The concrete deteriorates and creeps?

MR. AHRABLI: Correct.

DR. WALLIS: Does it --

MR. AHRABLI: Tendons actually would

relax.

DR. WALLIS: Yes.

MR. AHRABLI: The tension on the tendons will --

DR. WALLIS: So it's basically the concrete that creeps, isn't that?

MR. AHRABLI: Which is very minute, but it will. The true statement is the answer is yes. The amount of it will be very minimal.

DR. WALLIS: Concrete.

MR. AHRABLI: But mainly, it basically will be your tendons that will be relaxing.

MR. ROSEN: I think you said the concrete creeps. Did you say that?

DR. WALLIS: You meant the steel.

MR. AHRABLI: Steel, correct.

DR. WALLIS: Maybe I misunderstood you or you misunderstood my question. The concrete is rigid and it's the steel that creeps.

MR. AHRABLI: As Alan was alluding to --

DR. WALLIS: So you just assume a logarithmic creep curve, a relaxation curve and you got one point on that curve and it looks reasonable.

MR. AHRABLI: Okay. Let's go back to the question again. I think we're kind of mixing apples

and oranges. The question was about the concrete creeps or the steel creeps?

DR. WALLIS: Well, I would say what affects this tension?

MR. AHRABLI: Okay.

DR. WALLIS: It's the tension you want and, presumably, if the concrete crept, you would lose tension and if the steel crept, you would lose tension. I think we have now established it's the steel that creeps and not the concrete.

MR. AHRABLI: Well, the terminology normally used is the concrete creeps and the steel relaxes, but if you wish to use it in the other way, you can say --

DR. WALLIS: Well, they both change the dimension. They both change the dimension.

MR. AHRABLI: But relaxation based on the tendon is what is the concern. And as Alan was mentioning, if the value shows that is, you know, not acceptable for the next period, the options are to, you know, as you mentioned, either re-tension it or replace it or repair it or redo the analysis.

DR. KUO: If I may, my knowledge, of course, is 10, 15 years ago, so anyway, I try. We have Reg Guide 1.35. That specifies the requirement,

the tendon surveillance requirement, and the current ASME Code Section XI IWL also has the same requirement. Okay.

Ideologically, when we designed the plant, the prestress component, there are a set of project the curve. That gives a band. Every time you do the surveillance, you try to measure the tension in the tendons. Okay. So in any surveillance interval, if you discover that the tension is less than or outside the band, it will be retained.

DR. WALLIS: These are sort of general protestations. All I'm really looking for is the data. If you could put up a figure, which said these are the tensions we measured, this is how we extrapolated them, here is the criteria, everything would be clear in about 10 seconds. When you say I used this guide and that guide and they went through some ritual, that doesn't tell me anything about whether it worked or not, whether the answer was right or not. I just want to know.

DR. KUO: That's why I'm going into the details.

DR. WALLIS: But I don't want all the details. I just want one summary statement.

MR. SIEBER: You want the number.

DR. WALLIS: I want the number.

DR. KUO: The projected curve, it projects the number at the year 40. At the year 30, the minimum required tension for that design. It builds up at the beginning based on the relaxation, the prestress loss, okay, a factor, and then come down to say, current term is 40 years that the curve should be at --

DR. WALLIS: But this is really a comment of what it should do. All I want to know is does there --

MR. SIEBER: Does it --

DR. WALLIS: Does their design and their history meet the requirement?

MR. YOUNG: This is Garry Young. An additional comment. Hans Ashar did ask for the curves and we did provide them and they do show a projection for 60 years that would be below the minimum value. We're continuing to monitor in accordance with the Inspection Programs to ensure that those curves remain valid.

DR. WALLIS: Do you predict through that 1999 point or do you predict just from ANO-1?

MR. YOUNG: Both. We gave all of the data for both the previous methodology, which was based on

the Unit 1 data, and the new methodology, which included the data from Unit 2.

DR. WALLIS: But they don't make sense. They are not scattered all over the place?

MR. YOUNG: No, the trend matches the original design.

DR. WALLIS: Okay. So if you had shown the figure or something, it would have been clear.

MR. YOUNG: The figure is in the RAI responses.

DR. WALLIS: It is in the RAI responses?

MR. YOUNG: Yes.

DR. KUO: Yes, Hans Ashar has the curve.

MR. ROSEN: Okay. So now we have the curves and we have shown you are not going to be in compliance at 60 years. You're going to be below the minimum requirements.

PARTICIPANT: For the tension.

MR. YOUNG: I'm sorry, I misspoke. The curves show that we are within the minimum requirements for 60 years.

PARTICIPANT: Above the minimum requirements.

MR. YOUNG: Above the minimum requirement. I'm using the wrong term.

MR. ROSEN: Well, that's different than below.

MR. YOUNG: Yes, we meet the requirements for the 60 year term and we will continue to monitor.

MR. SIEBER: It takes time.

DR. KUO: The prestress has to stay above the minimum.

DR. WALLIS: I know that. I just want to know the answer. That's all.

MR. ROSEN: When he says it's below, then I'm suddenly concerned. Then he corrects himself and says above.

DR. WALLIS: I just don't know why we can't get an answer in five seconds.

CHAIRMAN BONACA: Let's move on.

MR. SUBER: In Section 4.6, the staff evaluated the TLAA for containment liner plate and penetrations fatigue analysis. The applicant stated that the allowable fatigue cycles far exceeded the projected number of anticipated cycles for all operating conditions. The staff concluded that the containment liner plate and penetrations fatigue analysis remains valid in accordance with 10 CFR 54(c)(1)(i).

DR. WALLIS: Do you have to read all these

numbers?

MR. SIEBER: No.

MR. SUBER: In Section 4.7, the applicant listed six additional plant-specific analyses.

PARTICIPANT: They can fill this slot, Mario.

MR. SUBER: And we are going to highlight just a few of these examples. The TLAA for Alloy 600 nozzle repairs is evaluated under Section 4.7.5. The half nozzle repair method leaves a short section of the original nozzle attached to the inside of the surface of the J-groove weld and exposes the ferritic material to borated water. The applicant stated that the service life of the repairs extend beyond the period of extended operation. The staff concluded that the projection of the analysis was valid.

DR. WALLIS: Now, do we have a good technical base for evaluating that, the service life of these repairs?

MR. MEDOFF: This is Jim Medoff with the Materials Branch. Yes, Arkansas Nuclear One - Unit 2 is a CE design, so they fall within the band of a topical report that was submitted to us by combustion engineering. They originally submitted it for 40 years and then we had some issues about the ferritic

analysis that we wanted answered and their projected ferritic corrosion rates.

The other thing they had to address in the CE Report was fatigue crack growth of the existing flaw. So there were actually two criteria they had to evaluate in the report. Combustion engineering sent in a revised report not only to address our concerns with the ferritic corrosion rate analysis, but also there was a typographical error that they wanted to -- there was an error in the design basis for the fatigue crack growth that they wanted to fix, so they addressed that in the revised report and they also addressed 60 years from plant life. And we just put a safety evaluation out on that topical report for approval, and I can get you that safety evaluation to ensure that the half nozzle repair is applicable for 60 years.

MR. SIEBER: I presume that the projected corrosion of the boric acid on the ferritic material in the absence of oxygen is in the order of a few mLs.

MR. MEDOFF: That's a large part of it.

MR. SIEBER: Yes.

MR. MEDOFF: But I can get you this.

MR. SIEBER: So it's not of any major concern?

MR. MEDOFF: Right. And we can get you the safety evaluation on the revised report, and I will bring that to you with the revised guidance.

MR. SIEBER: I can picture it. I can picture it. You don't need to.

MR. SUBER: The TLAA for the Reactor Coolant Pump Code Case N-481 is evaluated in Section 4.7.2. The applicant stated that the number of transient cycles for 40 years were still bounding for 60 years, and the staff concluded that the TLAA remains valid.

DR. WALLIS: You said you believe what they said, in other words?

MR. SUBER: Yes, sir. The TLAA for RCS piping leak-before-break analysis is evaluated in Section 4.7.1. As indicated on the slide, the leak-before-break analysis requires that the growth of the postulated flaws should meet a safety factor of two for the critical crack size. The applicant has demonstrated that the cycles in the fatigue growth analysis are bounding for 60 years. Therefore, the staff concludes that the TLAA for leak-before-break remains valid.

To summarize the staff's evaluation of the TLAAs, the applicant has demonstrated that the TLAAs

will remain valid for the period of extended operation or have been projected to the end of the period of extended operation or the aging effects will be adequately managed for the period of extended operation.

DR. WALLIS: It's very difficult to demonstrate that something will happen, but I guess it's the best you can do. All these assurances that everything will be adequately managed is rather difficult to verify. We all hope that we will do good things in the future.

MR. SUBER: Experience will show us.

DR. WALLIS: So the only thing is really to base it on the way they have done things up to now.

MR. SUBER: Yes, sir.

DR. WALLIS: You have to evaluate what they have been doing and extrapolate it. Is that what you do?

MR. SIEBER: Well, they could become born again, you know.

DR. WALLIS: It's almost like what teenagers say. I'm going to be good or something. It's a basic question with all these TLAAs.

MR. SIEBER: Yes.

MR. SUBER: The basic question is that

we --

DR. WALLIS: So you satisfy yourselves by having some sort of inspection or monitoring person?

MR. SIEBER: Well, that's the Reactor Oversight Program.

CHAIRMAN BONACA: In some cases, I mean, it's purely a re-engineering analysis, so that you have more confidence. In others, you depend on managing. So you have to monitor, evaluate, calculate.

MR. SUBER: Using the Aging Management Program.

CHAIRMAN BONACA: And so on and so forth.

DR. WALLIS: Really, what we should be after is not whether or not you think it's going to be adequately managed, but how you assure yourselves in the future that it will be adequately managed. Isn't that a more important thing we should be concerned with, because it always could appear that everything is going to be fine, but how are you going to assure yourselves that it will really be fine?

MR. SIEBER: Inspection and enforcement.

MR. SUBER: Through the inspection process.

MR. SIEBER: Inspection and enforcement.

DR. WALLIS: Then what we should focus on in license renewal is not all these assurances, but how are you going to actually implement them?

CHAIRMAN BONACA: Well, right now these are the commitments really. I mean, we don't -- you know, can you get through licensing? None of these plants is in the license renewal stage.

DR. RANSOM: It seems like a lot. Excuse me. Go ahead.

CHAIRMAN BONACA: Sure, no.

DR. RANSOM: It seems to me like a lot of these issues, you know, of aging management are really more management problems. It's like the Enron situation. How good is the actual system that is going to do record keeping, preserve the records, monitor these things, but yet the system doesn't seem to really test that.

MR. ROSEN: I'm not sure Entergy is going to want to be compared to Enron even though the first two letters --

DR. RANSOM: Safety culture is another aspect, I guess, that has been used and talked about here.

MR. SIEBER: These things show up as cross-cutting issues in the ROP, you know, the failure

of problem identification and resolution, which is what we're talking about here. It's an element in safety culture. It's an element that is measured in the ROP and reported and they have a finding there, I think.

DR. RANSOM: Well, does anyone ever look at how well all these records are preserved? I get the impression that if something burned down and the records were lost, the plant would be lost.

MR. ROSEN: No, that's not true. All the records are kept off site.

MR. SIEBER: There are double.

MR. ROSEN: And there are two sets of them and typically --

DR. RANSOM: There are requirements in place to do that?

MR. ROSEN: Yes.

MR. SIEBER: Yes.

MR. ROSEN: 75 years.

PARTICIPANT: In a cave someplace.

MR. SIEBER: We kept ours in a mine.

MR. ROSEN: Iron Mountain.

MR. SIEBER: Yes.

PARTICIPANT: An abandoned mine.

CHAIRMAN BONACA: But you have to look at

the big picture of what's happening with license renewal. I mean, you are taking, you know, all the commitments applied surrounding and etcetera, and you are focusing all those commitments on aging for the next 20 years of operation. And so I think it's beneficial, that perspective.

I think, you know, that's the difference, for example, that we see with some of the review programs they have in foreign countries. They are not really focused on aging, per se, and, yet, it's happening. I think, at this stage, however, we are really at a commitment stage. Whoever walks into license renewal will see how this thing ends up being implemented.

MR. ROSEN: Are we in the subcommittee discussion section now, Mr. Chairman?

CHAIRMAN BONACA: I think so. We're pretty much done?

PARTICIPANT: Yes, sir.

CHAIRMAN BONACA: Do you want to go through your last slide?

MR. LEITCH: I have a question about scoping that I think is an interesting one to me. There in the draft SER, pages 2-3 and 2-4, there are three types of spatial failures discussed. We're in

the area of how do you scope items into license renewal that could possibly damage or prevent the proper operation of safety-related equipment. And all these things are spatial. That is they discuss, basically, impact, whip and spray.

But I wonder if we have considered in any of these things the disintegration of non-safety-related components such as valve internals and how they might affect the proper operation of safety-related components. I see this as parallel perhaps to the situation at the BWRs where the steam dryers were ultimately included in scope on the basis that they could fail in such a way that they create loose parts. Those loose parts would go down the main steam line, prevent the proper operation of the main steam valves, which are safety-related. And it seems to me that we have not considered here those kind of interactions as being candidates for putting equipment in scope.

DR. WALLIS: Are you thinking of something like a valve stem blowing out under pressure?

MR. LEITCH: Yes, or a disk dropping off a valve. In a non-safety-related system, a disk drops off a valve and prevents the proper operation, you know, moves downstream and prevents the proper operation of some other piece of equipment.

Now, I guess it seems to me that the whole discussion of the BWR steam dryer opened up this door, because I don't think previously we had considered that in the interactions. I say that the interaction was, basically, a spray or something falling from a non-safety-related system that directly physically damaged the safety-related system. But I see an inconsistency with what we have done in the BWR steam dryer situation and what we're doing elsewhere.

I guess what I'm saying is is it appropriate or have we considered this kind of non-safety-related damage, non-safety-related disintegration damaging a safety-related piece not from falling, but from passing down the line where a spatial action, a spacial analysis, might not give you the right answer?

DR. KUO: Yes, I guess I have a two part answer. You know, this kind of interaction I would say will not happen unless there is an aging problem, there is increase of, say, flow, temperature, pressure and all that, because the valve itself supposedly is designed for whatever it's supposed to serve.

Now, one thing can happen is aging, and these are the active components that you are talking about. And we have a Maintenance Program to monitor

that. If there is any problem, that will be either replaced or refurbished or whatever. So without any other factors, just due to operation, I believe that the Maintenance Program will take care of it.

Now, because of the power uprate, we have a change of characters. The flow may be -- the speed increased, the pressure increased, the temperature increased and all that. Okay? And that is what we find out here in the, say, BWR steam dryer. Okay? And now, in our letter to the ACRS, we made it very clear that if a plant comes in for power uprate after license renewal, after the receipt of a renewed license, the applicant for that plant, they will have to address aging of this type of a problem.

DR. WALLIS: Because it's a question of scope, isn't it? What if you have something -- scope, say, for safety, which could go affect something that does affect safety downstream, then maybe it should be within the scope of license renewal.

DR. KUO: Yes.

CHAIRMAN BONACA: But it seems to me that, you know --

MR. LEITCH: It's non-safety-related.

DR. KUO: But so far, we don't have this operating experience. We haven't seen anything that

is disintegrated.

CHAIRMAN BONACA: That's right. I mean, it seems to me that, you know, the issue of long-lived component that's for the metal one, we never would have thought of steam dryers, because we never thought they would come apart.

DR. KUO: Right.

CHAIRMAN BONACA: We're realizing they can come apart. In fact, they did. Then we said okay, then the interaction is possible now. I would say that you probably would treat other internals the same way if you have a history or experience where some measured components internal could come apart or fragment itself in a way. But, you know, you would have to have some experience that says this happens and there is a possibility of that.

DR. KUO: And if that does happen, we take care of it immediately just like this steam dryer.

MR. LEITCH: Yes, okay. But you're thinking, consciously thinking about whether a piece of equipment falls off the wall and damages a safety-related piece of equipment below.

DR. KUO: Right.

MR. LEITCH: I'm just saying are we consciously thinking about some kind of an internal

disintegration of a valve that could damage safety-related equipment. I mean, it looks as though that thought process is excluded from this screening criteria.

DR. KUO: I don't believe so.

MR. LEITCH: Scoping criteria.

DR. KUO: I don't believe so. I think that thought is there when we do the scoping, but in the case of a stream dryer maybe there's just one thing.

MR. LEITCH: Yes. Well, we got smart after the fact there. What I'm saying is shouldn't we be thinking about situations where we can get smart before the fact.

DR. KUO: Yes.

DR. FORD: I thought, P.T., you said that items such as a valve stem or something like this, a moveable part, will be covered by the Maintenance Program.

DR. KUO: Yes, yes.

DR. FORD: I think what the question is is that good enough?

DR. KUO: Well, that's why I have said we don't have any operating experience so far. Our experience has shown that with maintenance rule there,

this type of a disintegration that we're talking about probably won't happen. I will not say never happen.

DR. WALLIS: It's sort of irrelevant whether it's a moving part or a stationary part if it's going to disintegrate.

MR. ROSEN: Except that the moving parts get examined routinely.

DR. WALLIS: Get examined. That's right.

MR. SIEBER: And the moving parts are covered by the rule.

CHAIRMAN BONACA: And the moving part begins to malfunction. You know the pump is not working. You have to, you know, take it down and you fix it.

PARTICIPANT: You take a check valve.

MR. SIEBER: I'm talking about a non-safety-related part, non-safety-related part of the steam dryer to break up that, the proper operation of a safety-related part.

CHAIRMAN BONACA: Yes, I have been trying to think about some example I can come up with, but --

MR. SIEBER: Well, the examples are all the check valves in the safety injection system. You know, of the valves, check valves are the ones that fail the most.

MR. LEITCH: They are in scope.

CHAIRMAN BONACA: They are in scope.

MR. SIEBER: That's right. Well, they aren't in scope, because they are moving. They are active.

MR. ROSEN: Their bodies are in scope, but not their flappers.

MR. SIEBER: Flappers are not. They are part of the --

MR. ROSEN: And that's what you're worried about, it's the flappers and the pins and that sort of thing.

DR. WALLIS: There are sometimes other parts of valves, which are stationary, but are not all that robust, which can break off.

MR. LEITCH: Well, I just wanted to have a discussion. I will see if I can think of a good example. At the moment, I'm hard pressed for an example, so maybe your answer is right that it hasn't happened, so we'll worry about if and when it happens.

MR. SIEBER: When it does.

DR. LEE: This is Sam Lee from License Renewal. Yes, that is good question. You know, sometimes the staff actually ask that kind of question. Like, you know, inside the steam generator,

for example, okay, like the J-tube, the feed rings.

MR. LEITCH: Okay, yes.

DR. LEE: Okay. Sometimes they fail. They crack. You get a loose piece.

MR. SIEBER: Yes.

DR. LEE: So the staff ask that kind of question. Okay? So sometimes you see the feed ring is actually in scope because of that. Okay.

DR. WALLIS: You find pieces of J-tube at the bottom of the steam generator?

MR. SIEBER: Or stuck in between the two.

DR. WALLIS: Stuck in between.

MR. SIEBER: Yes, but that's a pretty rare occurrence.

CHAIRMAN BONACA: I'm sure as plants age, there will be some new examples that will lead to, you know, expansion of the scope as we had for resident requests.

DR. LEE: Yes, this is based on our experience. Otherwise, you cannot stop. You can say, you know, if we fail that everything fails.

DR. KUO: There are thousands of components.

MR. SIEBER: Yes, that's right.

DR. KUO: We can't postulate that, you

know, disintegration on every one of them. Then this is going to be impractical.

PARTICIPANT: That's correct.

MR. LEITCH: I guess there seem to be some words in the draft SER that suggested to me that those kind of things were specifically excluded from consideration.

MR. SIEBER: Well, it's what the rule says.

DR. KUO: According to the rule.

PARTICIPANT: That's right.

MR. LEITCH: Because they hadn't happened. Therefore, we excluded them from consideration.

DR. LEE: Yes. Actually, without the rule the statement of consideration actually had certain criteria in there. One is the operating experience, because we use the rule for comment. That is one of the comments we get, because, you know, otherwise I say you can assume everything fails. Okay? So that is one of the, you know, considerations.

MR. LEITCH: Yes. Okay. I'll see if I can think of a good example for it.

CHAIRMAN BONACA: Okay.

DR. KUO: If you can give an example, that will be great.

CHAIRMAN BONACA: Okay. If there are no further comments, at this point, I would like to go around the table and see if there is any observations that you want to make regarding this application. I'll start on this side. Rich?

DR. DENNING: No.

CHAIRMAN BONACA: Graham?

DR. WALLIS: No, I don't see any issue which is going to hold things up, but as I have said already today, I'm a bit concerned about the process where a whole lot seems to depend upon assurance that everything is going to be done properly in the future and that's a very difficult thing to get any sort of real assurance of. I don't quite know how we handle that unless it's renewal, but that would seem to be the main question really. Things are fine now. Everything is going fine. Everyone is doing the right thing, but what is the assurance that it's really going to continue?

DR. KUO: Well, Dr. Wallis, maybe you already know that, but let me repeat it. Now, to assure that whatever they have committed will be done properly, we have a list of commitments in the SER and that list of commitments transferred to our inspection procedure, post license renewal inspection procedure.

So the inspector, regional inspector, that are going out before year 40, they are going to assure that the implementation of the commitments are there.

DR. WALLIS: So the real question about license renewal should perhaps not be what is the applicant going to do, but what is the NRC going to do.

CHAIRMAN BONACA: Well, that's why we have raised this issue many times, the burden and the bow wave commitment that the NRC will have to work on.

DR. WALLIS: Right.

CHAIRMAN BONACA: Hopefully, however, I think that the licensees will proceed, hopefully, in a seamless way or, I mean, to transition from the last day of your 40 years to the next 20 in a smooth fashion and they will want to do that and so, you know, that should be --

DR. WALLIS: I think the thing is as plants get older and things happen, will the NRC be on top of them is the sort of question I have. I think the licensees are closer to it. Probably they have got more chance of catching things.

CHAIRMAN BONACA: That's right.

DR. WALLIS: I just wonder if the NRC will sort of anticipate perhaps some of the things they

will need to think about. That's the only sort of general question I have. It doesn't really apply to ANO.

CHAIRMAN BONACA: Peter?

DR. FORD: I see nothing, say, that the ANO application does not conform to the requirements. I have got some general comments. There's this question of the quality of Aging Management Programs as to how they are assessed, and we have discussed that in some detail, the quantitative quality aspect.

And again, I have said this before too, that I think there is an urgent need for an update to the GALL Report. It seems if everything conforms to GALL, then it's all right, but GALL is old and there are new aging phenomena coming to the fore, which the technical community are well aware of, which is not in GALL. For instance, the effect of surface core of stainless steel in PWR systems and the stress corrosion of that, the validity of K_{Ic} values for high nickel alloys in PWR primary systems.

These are the issues that the technical community knew about, but it is not perfected in GALL. I would hate to see this delayed too much further. GALL doesn't take those into account, but it has got nothing at all to do with the ANO applicant.

MR. SIEBER: It doesn't have much to do with LRA either, because it has to get into the code.

DR. FORD: Well, I know that.

MR. SIEBER: And the staff has to write a reg guide to endorse it.

DR. FORD: Jack, that will take time and as we know --

MR. SIEBER: But that's the path.

DR. FORD: Absolutely correct, and I guess I want to be more proactive than reactive.

CHAIRMAN BONACA: And I think, you know, the issue of GALL needs to be updated. They are doing it.

DR. FORD: Oh, absolutely.

CHAIRMAN BONACA: And I think that --

DR. FORD: I'm just saying.

CHAIRMAN BONACA: There is a need. I agree with you. For example, you know, many of the exceptions that I see in these programs being made by licensees then are accepted by the NRC naturally, because they have to do with over-prescriptive commitments, as I said, in GALL. I think to the degree to which we can relax them, it will allow for the licensees to use their own programs without having to have exceptions.

I mean, you know, like this interval, the frequency of interval in the fire equipment. I mean, you know, what they are all showing is that the intervals they are proposing and using right now are longer than the ones in GALL. And if they are acceptable once, they should be acceptable in all cases without having to have reviews, etcetera. Otherwise, they should not be acceptable in all cases either. So I think that a GALL update will help. Steve?

MR. ROSEN: I have some direct messages for the licensee and some for P.T. Kuo and his team. First the licensee. I think they have used the wrong capacity factor for the pressure-temperature limits of the pressurized thermal shock in the Upper Shelf Energy screening. The use of 80 percent capacity factor for 60 years, clearly, that's not where they are headed.

It would be more correct, in my view, to use 80 percent for the first 25 years of operation and something like 90 percent for the remaining 35 years. But if you do that, you get to a point where -- I'll do a calculation for Mr. Medoff ahead of time, it's the margins are either not there for USE or are razor thin for the Upper Shelf Energy.

We heard this morning from our friends to talk about pressurized thermal shock, about the importance of Upper Shelf Energy in the late stages of a pressurized thermal shock event. You need to have retained ductility in those time frames, and so that's very important. And as I said, I think the wrong number has been used.

DR. DENNING: Excuse me. Can I ask you, Stephen, isn't it the utility that pays the price if that's the case though?

MR. ROSEN: No.

DR. DENNING: I mean, they are just going to have to come back at some time later and have to -- it doesn't really affect us, does it, as far as saying okay, you can go forward recognizing that, at some time, they are going to exceed --

MR. ROSEN: That's one way to look at it, Rich. I think the other way to look at it is if the utility came in and said well, I'm going to use 70 percent, because that gets me just above the Upper Shelf Energy criteria, even if he never had 70 percent before, what if it was 60 percent?

The question is when do you say that's nonsense? And I think Entergy prides itself, rightfully, on high capacity factor operation. And

here they use a capacity factor that is just not going to be representative. So anyway, enough said about that. I don't know where we go with that, but that's just my view and my simple calculation. So I may be wrong with the calculation, but I think their margins are either not there or are razor thin for the Upper Shelf Energy.

PARTICIPANT: And they don't run.

MR. ROSEN: The second point I want to make for the licensee was that the reactor vessel head ultrasonic inspections that were done instead of bare metal visual inspections are of some comfort. It's true they detect flaws that have not yet come through and that's a good thing. But I'm always more comforted by looking at the -- I am also comforted, let's put it that way, by looking at the bare metal visual of a head that shows no obvious staining from boric acid, and I hope that when they replace their head that they will make it easy to get in there and see. That's an important phenomenon.

I really would like clarification of when that's all going to happen. I didn't understand what all was said about the timing for all that, and I think it's a good idea to replace the head and it should be done promptly if you're going to do it.

The third thing for the licensee I thought about is that there are some demonstrated weaknesses in the PI&R Program. We all rely on it in a lot of ways and I know it's in the ROP, so I know you're working on it, but it comes back to our ability to have confidence in license renewal. If the plant is having trouble now running or operating a corrective action system at such a level that it is now in white finding, that's not a good port then for the future.

And then the fourth message I would have is, you know, when you come in and wave at us a commitment tracking system chart to which we are supposed to take some comfort, but that the staff finds that one of the very first, I take it, commitments in the license renewal area, the masonry wall baseline exam, was missed as a result of some failure in the commitment tracking system, it's not a good sign.

So I'm concerned about that as well. Maybe some of these points if you read the transcript or think about, I mean, you might say some things about us, to us in the future and give us some more comfort as we go further down the road on this.

Now, for the staff, a couple of points, P.T.

DR. KUO: Yes.

MR. ROSEN: First, this Flow-Accelerated Corrosion Program Review that Peter Ford wrote up I think is a very good idea.

DR. KUO: Right.

MR. ROSEN: We had that very sad and serious event in Japan.

DR. KUO: Yes.

MR. ROSEN: We know what's going on in the industry or at least I used to know. Maybe it's time to have a review of a Flow-Accelerated Corrosion Program outside of the context of license renewal. So I guess it's really not to you, P.T., but to the staff and your manager.

DR. KUO: Yes, I think it is.

MR. ROSEN: The second one is the action matrix chart that was shown. I mean, I guess it wasn't shown. What was shown was the performance indicator chart all green.

DR. KUO: Yes.

MR. ROSEN: And then when we were told there was a white finding in the action matrix on, I guess, it was corrective action.

MR. SIEBER: Right.

MR. ROSEN: And I said well, where is it

and they said well, that's on the other chart. Well, maybe you could try showing us both charts.

DR. KUO: Okay.

MR. ROSEN: All right?

DR. KUO: Okay. We will get that.

MR. ROSEN: And the third and final thing is I don't know. Let's see. This opportunistic inspections business for buried piping. I rather think that we have got it backwards in the way we're looking at it in license renewal space.

DR. KUO: I got it.

MR. ROSEN: You understood that.

DR. KUO: I know your concern.

MR. ROSEN: Okay. Well, that's all I have to say.

CHAIRMAN BONACA: Good. Thank you. Jack?

MR. SIEBER: I'm going to just confine myself to license renewal, as opposed to current operating things and so forth. You know, I don't see any major impediments to moving forward nor problems with the safety evaluation for license renewal, so I guess I will just state that.

CHAIRMAN BONACA: Okay. Vic?

DR. RANSOM: I don't have much to offer, but except after sitting through a couple of these

license renewal applications and their review, it's apparent to me that not only is their aging management as important, but how well management ages. And there is very little attention, I think, to the management system and I know that's a difficult thing to deal with, but you want to be able to be assured that things like Davis-Besse aren't going to happen.

CHAIRMAN BONACA: Graham?

MR. LEITCH: I don't have much to add that wouldn't be redundant to some of the comments that have already been made. I do think though that when the licensee comes back and makes a presentation to the full Committee meeting, they should be prepared to discuss in a little more detail the implementation schedule for some of these Aging Management Programs. I think that's of interest to the whole Committee.

And I know that it's perhaps difficult to finalize that schedule before it's completed, before you have got the new license in hand, but there have been other applicants that have come to us and given us some kind of a rough indication as to their schedule. Not a commitment, that's not what we're looking for, but some kind of an indication as to what the schedule would be for the implementation of those programs.

CHAIRMAN BONACA: Thank you. I will repeat some of the observations we have made. Some of yours, Steve, I appreciate and I share. Looking at the application, it seems to be clean. I agree that there are no open items on it and I am also impressed by the review process, particularly again this audit that has been done. I think it's a quality document. It brought a lot of information on the programs.

You know, as I said before, I complained about the fact that the programs described in Appendix B, there wasn't much detail there, but the audit brought a lot of the detail inside. So that was valuable and I think that, you know, this new process should streamline the review. In fact, you have less RAIs. I believe once you have also GALL updated and less prescriptive, I think you're going to see even less RAIs, because there will be less exceptions.

I think that this application is just similar to the previous we saw of Farley. I thought it was, you know, pretty complete and I think it covers the basis. Again, it has a lot of commitments and, hopefully, the transition to license renewal will be a seamless one. I mean, will we see implementation of some of the commitments ahead of time before we get to the last meeting, and that is one thing that we are

concerned about as a Committee, because we realize the impact it is going to have on the staff, one of being able to review the implementation of these programs when you get there.

So regarding the full Committee now, I don't know when it's scheduled to be. Is it --

PARTICIPANT: In June right now.

CHAIRMAN BONACA: In June right now. Okay. So you already got some feedback from us about what we would like to see. Clearly, one thing that is of interest to the Committee always is initiatives that you have to improve the plant, and you already have some. I mean, you have replaced the steam generators. Some information regarding that is important to us, for example, the fact that you're using 690. 690, that's an important element.

Also, I think it's of interest to the Committee. Well, I mean, this is an issue, but there are other issues like the reactor, replacement of the head. You know, maybe you will tell us that you commit to do that, but it's not a commitment. But if you have information, certainly, it's useful to us. And other initiatives you may have to improve the plant, we would like to see those.

The other thing that is of interest to us,

it's some of your operating history. I mean, you have had generally not many problems, but if you have had some problems, you know, we are interested to see how you dealt with it and how programs that you have put in place deal with monitoring performance of repairs and whatever going forward. So those are things that are of interest to us.

At a technical level, just because at this stage we are more interested in those issues than just specifically in procedures that we already have looked at. And I think that pretty much concludes my remarks.

MR. SIEBER: I take it that we aren't going to have an interim letter.

CHAIRMAN BONACA: An interim?

MR. SIEBER: Interim letter.

CHAIRMAN BONACA: No.

MR. SIEBER: Okay.

CHAIRMAN BONACA: We're not going to have one.

MR. SIEBER: No issues?

CHAIRMAN BONACA: There are no issues, no open items. So I would like to go around and ask if there are any further questions or comments from Members.

MR. ROSEN: Well, the only thing that's possible is if Medoff comes back and says they are below the shelf, USE criteria, then I would say that we have an issue, that they have to do the equivalent margins analysis.

CHAIRMAN BONACA: That's right.

MR. ROSEN: That hasn't been done.

CHAIRMAN BONACA: That's right.

DR. WALLIS: I support your statement about audits. I think these on-site audits are very helpful and they make a real contribution to sort of adding information that we need.

CHAIRMAN BONACA: And by the way, yes, I mean, the commitment evaluation was promised to us. We will get it.

MR. ROSEN: Before Friday.

DR. LEE: We will try to get it to you tomorrow according to Medoff.

CHAIRMAN BONACA: All right.

DR. LEE: Get it to Tanny when we get it. Okay.

CHAIRMAN BONACA: Okay. All right. So with that, any additional comments or questions from the public? Since I hear none, I will adjourn the meeting actually. Thank you very much.

PARTICIPANT: Thank you.

(Whereupon, the meeting was concluded at 5:46 p.m.)