Barton faxed me a comment about that, that there is no aging management program of the in-take structure.

MR. MUNSON: Okay. Is Arnold Lee here?

MR. LEE: Yes.

MR. MUNSON: Can you address his question?

MR. LEE: What was your question again?

DR. DUDLEY: Come to the mike, please.

MR. LEE: I am Arnold Lee.

CHAIRMAN BONACA: In reading the application and the SER, clearly there are a number of systems or components which are attached to this structure which are important to safety which are part of the aging management program, but there is no aging management program for the structure itself.

MR. LEE: There is no aging management program for the structure. It is for the steel.

MR. MUNSON: For the in-take structure.

CHAIRMAN BONACA: For the in-take structure. Could you explain a little bit why that is?

MR. LEE: Maybe I didn't understand the question. Could you repeat it again?

CHAIRMAN BONACA: Yes. Let me just go through some notes here.

MR. LEE: There are a number of aging

management programs to cover the aging effect, and there is a structural monitoring program, a systems structural monitoring program.

CHAIRMAN BONACA: And that covers also the in-take structure?

MR. LEE: I have to look into that. I have to check whether that indeed would manage the aging effect for the in-take structure.

CHAIRMAN BONACA: I would like to have you find that out.

MR. LEE: Yes, I can find out.

MR. HALE: If you look at the application, Table 3.6-13, I am not sure the question that he is raising, but we highlight the systems and structures monitoring program for structural steel, anchorages, and embedments.

CHAIRMAN BONACA: And again the table is what?

MR. HALE: It is 3.6-13, which is the in-take structure, and it lists all the component commodity groups which require an aging management review on page 3.6-85. So I am not sure what the --

CHAIRMAN BONACA: So, okay. You do have it. I believe the question was -- or the one from Joe Barton -- related to the structure itself that

supports so many of these components here. For example, the instrument rack and frames.

MR. HALE: Right.

CHAIRMAN BONACA: And the question he had was regarding the actual grid structure.

MR. HALE: Well, reinforced concrete, foundation, beams, columns, walls, floor slabs, systems and structure of monitoring program.

CHAIRMAN BONACA: Okay. So it is under that, and you have a visual inspection program to look at spaulding and things of that kind.

MR. HALE: Yes.

CHAIRMAN BONACA: All right. So you do have it then.

MR. AULUCK: Okay. Next we will cover the electrical portion of the review.

MR. SHEMANSKI: My name is Paul Shemanski, and I am with the Division of Engineering, Electrical Branch, and basically for the electrical and instrumentation, and control section, Section 3.7, there were three groups of equipment that were identified for an aging management review.

These included basically insulated cables and connections, uninsulated ground conductors, and there were 22 electrical penetration assemblies.

These are non-EQ penetration assemblies.

There are additional penetration assemblies in the plant, but they are treated under the EQ evaluation. They are evaluated as a time limit of aging analysis.

There were no open items. However, there were two items of interest. The first one deals with non-EQ medium voltage cables that may be subject to significant moisture. The moisture would come in basically for cables that are in conduits, cable trenches, duct banks, underground vaults, or direct buried installations.

And at Turkey Point, they have a unique design. These cables are designed with a lead sheath around the insulation that basically prevents the ingress of moisture, and the moisture would be the phenomena that would be the result of a failure in these cables if moisture gets in and it is subjected to a long term exposure.

And also energized at the same time, you could get an effect called water traying. That's where the insulation basically breaks down and it ultimately could lead to cable failure.

This goes back to the Davis-Besse event back in October of 1998, I believe. However, because

of their unique design at Turkey Point, with the alleged sheath around the cable insulation, basically that precludes any moisture ingress.

So as a result there was no aging management program required for these medium voltage cables. And this second item of interest was the fact that in response to a staff request for additional information, the applicant developed an aging management program for non-EQ cables, connections, and penetrations.

And these are the components that may be subjected to a localized adverse environment caused by increased radiation or temperature. These components will be inspected every 10 years. It is basically a visual type inspection, looking for degradation of the cable outer jacket, and looking for discoloration, cable cracking, and that type of thing.

The program that they proposed, as I mentioned, it is a new program, and it is consistent with the cable aging management programs that we have described for non-EQ cables.

CHAIRMAN BONACA: Let me ask you a question now. Does it mean that this program here is also looking at those cables were said are already protected by this lead sheath?

MR. SHEMANSKI: No.

CHAIRMAN BONACA: It is not?

MR. SHEMANSKI: We have three separate programs deigned in goal. One of them looks specifically at medium voltage cables.

CHAIRMAN BONACA: That's right.

MR. SHEMANSKI: And that one, because those are typically inaccessible, a visual inspection would not work. So those cables will be tested every 10 years, starting at year 40, and then year 50, to give you two data points.

Because of their unique design here with the lead sheath, there was no need for them to enter a cable aging management program. The theory is that water should not get into the insulation based on the design of these cables.

The cable aging management program they did propose, those are for non-EQ cables, inside containment primarily subject to localized adverse environments from radiation and temperature. And that program is consistent with the way they have been described in-goal.

CHAIRMAN BONACA: A member of the subcommittee who is here raised a question regarding the first bullet here, the one protected by a lead

sheath. I mean, he was asking the prudency of going all the way to 60 years without looking at those cables.

I mean, how comfortable are we that this design is so consistent that it will last the 60 years without even looking at it?

MR. SHEMANSKI: Well, these cables are periodically energized and I believe they do periodic measure tests on them. But I think the bottom line is that these cables are very robust. They brought in a sample of several of these cables, and again they are medium voltage cables.

Medium voltage cables are anywhere from 2,000 to 15,000 volts. So by their very nature, they are very thick. The one that they brought in a sample of, the cable diameter must have been one inch in diameter, and maybe 1-1/2 inches, and the alleged sheath was quite sizeable. I forget, but it may be nearly a quarter of an inch thick.

So it is pretty inconceivable that you would get degradation of that alleged sheath even at 60 years, I think.

CHAIRMAN BONACA: And do you have significant industry experience with those?

MR. SHEMANSKI: Well, the interesting

thing about it is that Florida Power and Light's transmission and distribution standards outside of the power plants, because we are subject to ground water, standardize an alleged sheath cabling specifically to ensure reliability of our underground cables in our housing, commercial industry, and that sort of thing.

So we have a lot of experience with it, and that got carried over into our power plants as a standard design. So that particular feature is specifically pointed towards a reliability for cable that may be subject to moisture. We have a lot of experience.

CHAIRMAN BONACA: Of course, with 45 years passing, and then you went to look at it, you would certainly go back and --

MR. SHEMANSKI: Well, we have had a lot of T&D installations in for even longer than that.

CHAIRMAN BONACA: I understand that, but I am trying to again develop the thought process behind license renewal, which is that you would go back with your corrective action program, and if necessary, you would have to address it for problems.

So to the best of our knowledge and understanding of the technology right now, you don't see the need for that?

MR. SHEMANSKI: No, not at this point.

CHAIRMAN BONACA: All right. Thank you.

MR. AULUCK: Next we will have aging management programs, new programs and existing programs.

CHAIRMAN BONACA: These are all one-time inspections?

MR. AULUCK: Yes.

MS. KEIM: My name is Andrea Keim, and I am from the Division of Engineering, Materials and Chemical Engineering Branch. I am here to discuss their aging management programs.

I guess we will go back and start with the three common ones that they have listed, which were the chemistry control program, the quality assurance program, and their systems, structures, and monitoring program.

The staff evaluates all the aging management programs using their tenant tributes, or elements that are referenced in the standard review plan.

We use these elements to determine if the intended functions of these structures, systems, and components, will be maintained consistent with the current licensing basis for the extended operation.

And after going over the first three, the common ones, there were no open items determined under these programs, although there is a confirmatory action item in regards to the FSER supplement for the QA program.

There may be other issues with the FSAR supplement due to the REI responses that may need to be updated to ensure that the programs are sufficiently -- that the program description is sufficient in the FSAR supplement.

DR. FORD: Andrea, I heard Mario just say that these are really one inspection?

MS. KEIM: Excuse me?

DR. FORD: Only one inspection is made on these?

CHAIRMAN BONACA: It is a one time inspection.

DR. FORD: A one time inspection?

MS. KEIM: I am talking first about the -- these are the aging management programs. Each one has different frequencies.

DR. FORD: Oh, okay. So it is not just once?

MS. KEIM: Yes. No. I just wanted first to go back to really the three ones that they have

listed as common aging management programs.

CHAIRMAN BONACA: I understand that, but I am saying that what is listed in Appendix B, these seven programs are one-time inspections.

MS. KEIM: Some are and some are not. It depends on the frequency listed.

CHAIRMAN BONACA: Well, I went through them, and all of them say one-time inspection, and if you find something, then you do more.

MR. HALE: I believe the auxiliary feed water steam piping inspection is not a one-time inspection. And the galvanic I believe is not, and the reactor --

MR. ELLIOT: The reactor vessel internals is not a one-time inspection.

MR. HALE: Right.

MR. ELLIOT: We are doing one on each unit.

MR. HALE: But I know that the auxiliary feed water steam pipe --

CHAIRMAN BONACA: One time for each unit. Yes, that is the one time for each unit, but I am saying that with the others, I went over them, and I was trying to understand which ones are one time inspections.

The reason why we had the philosophy that we discussed before, a one-time inspection is an inspection performed where you do not believe that you are going to have an aging problem developing.

So you do it just to confirm that you have confidence that you will not have that problem. Of course, now if you find that your expectation was optimistic, then you put in a program.

And so that's why I think it is important, and I want to look at them to convince myself that they are confirmatory in fact, and that we don't expect to have any problems in those areas.

And that's why I would like to ask those questions about the fact that they are one-time inspections, and they are different from the others.

MR. ELLIOT: The only one I can answer is the reactor vessel internal inspection and the small bore piping, those are both one-time inspections, and the reactor vessel, in terms of one time of each unit.

And the small bore piping inspection is a one-time inspection, and it is a volumetric inspection of the critical locations. And so these are for unanticipated cracks. We have not seen cracks on these small bores yet.

And it is intended to look volumetrically

to see if we do have cracks. So that is within the scope of what you just described. I can't answer for the rest of them. I can only answer for those two.

MR. HALE: But your interpretation is correct. In those cases where we had a one-time inspection, it is usually to verify whether something is occurring or not, because we don't know.

CHAIRMAN BONACA: All right.

MR. HALE: Our tools tell us that we should have an aging effect, but we haven't seen it in our operating experience. So it is a one-time inspection.

The auxiliary feed water steam piping though I know is one that we have or are going to have periodic inspections for, and I think if you read the description you will see that.

But the one time inspection is one of the reasons why most of these are new programs, because they are verification, and we have not had the operating experience, and it is one of the reasons why it is a new one that we haven't done yet if you want to look at it that way.

Now, the steam piping inspection program, based on some recent operating experience, we have identified the need to go out and look at not only

internal, but the external surfaces of that piping, and we are doing that now.

But in terms of a formal program, we wanted to formalize it under license renewal.

CHAIRMAN BONACA: You are correct. The second one is not a one-time. So I was wrong.

DR. FORD: But in general the rationale is that you will inspect these in 30 years or 35 years, or whatever it might be.

MR. HALE: We would use it as information. One of the issues that the industry has right now is galvanic corrosion in treated water systems. The do's say you have it, but we have not experienced it.

So galvanic susceptibility, we want to go and look at -- I mean, we certainly have experienced it in salt water systems and those where you have a high electrolyte process there.

So some of these we have not seen the experience, but we are going to go and inspect, and see if we see anything. If we do, then we will commit to additional inspections. We don't expect to find anything, with the exception of that one.

CHAIRMAN BONACA: And again I am not questioning whether or not it is a problem. It's just that typically I always look for the one-time

inspections because to me when I read that, it is telling me that you do not inspect to see a problem. You are just doing it to confirm that.

And if you in the verbiage you say that you are expected to find it, and then you decide what to do then, then a one-time inspection is not good enough. That may be simplistic, but we had some understanding of that some time ago.

MS. KEIM: At this point, I am going to hand it over to Cliff Munson, who is going to discuss the field erected tanks and internal inspection program, which does have an open item.

And after that, Jim Davis is going to discuss the galvanic corrosion susceptibility inspection program, which doesn't have an open item, but we wanted to highlight that program for you.

CHAIRMAN BONACA: Since there are a number of potential questions here coming over the next couple of presentations, and that might take some time, I think we should break now and take a recess for lunch.

I think we will gain some time in the afternoon, particularly in the discussion here, and so we should still stay on schedule. We will take an hour for lunch, and resume the meeting at 1:15.

MR. MUNSON: I must wanted to cover one thing briefly.

CHAIRMAN BONACA: Okay.

MR. MUNSON: It is just a five minute thing.

DR. ROSEN: Will that release you for the rest of the afternoon?

MR. MUNSON: Yes.

CHAIRMAN BONACA: Go ahead.

MR. MUNSON: This is one of the new aging management programs and it is a one-time inspection of these three tanks, and these are carbon steel coated tanks, and this is a new program, and so they have not developed any program requirements, in terms of the visual inspection.

And they have not developed acceptance criteria, and also the application was not clear on what previous operating experience there was.

So we asked for an REI on this, and they came back with some operating experience on the condensate storage tank and they actually recoated both of the tanks, one in '83 and the other one in '91, because of significant corrosion or degradating of the coating.

So we weren't clear if the demineralized

water source tanks or the refueling water source tanks had been inspected. So that also was part of the open item on this one.

So we have not yet accepted this as a one time inspection of the condensate storage tanks. We are waiting for additional information.

CHAIRMAN BONACA: Okay. Let's break, and we will come back at 1:15.

(Whereupon, at 12:15 p.m., a luncheon recess was taken.)

A-F-T-E-R-N-O-O-N S-E-S-S-I-O-N

(1:14 p.m.)

CHAIRMAN BONACA: All right. The meeting is called to order, and we will continue with the presentations by the staff.

MR. AULUCK: We will continue with the aging management programs. Andrea.

MS. KEIM: We were discussing the seven new aging management programs, and Cliff Munson had gone over the field erected tanks, and internal inspection program with the open item, and now Jim Davis is going to discuss the galvanic corrosion susceptibility inspection program.

MR. DAVIS: What they have done is they have identified a number of locations where basically you have carbon steel to the stainless steel connection. We have no history of any problems with galvanic corrosion in these areas.

But they are going to do a one-time inspection just to verify that they are not having any problems.

CHAIRMAN BONACA: On all of these components?

MR. DAVIS: These are all the component systems that were selected to be looked at.

CHAIRMAN BONACA: Now, regarding the fuel tanks, I believe there is an open item on those?

MS. KEIM: Yes.

CHAIRMAN BONACA: Could you --

MS. KEIM: The field director tanks.

MR. AULUCK: Oh, the field director tanks are what you are talking about?

MS. KEIM: Yes. Can you show that slide back up again.

(Brief Pause.)

MS. KEIM: And that one had to do with the acceptance criteria.

CHAIRMAN BONACA: Oh, yes, I remember that.

MR. AULUCK: They had not developed the acceptance criteria or limiting procedures.

CHAIRMAN BONACA: And so all the 10 elements are not fully defined, and that's what we are waiting for.

MR. AULUCK: Right.

CHAIRMAN BONACA: Okay. Thank you.

MR. DAVIS: Well, I missed my shot at the small bore piping inspection program before, but now that I have got an opening here with the galvanic program, I will take a crack at it from that point of

view.

It is our old friend, the one-time inspection program, and galvanic corrosion susceptibility strikes me as a place where a one-time corrosion program is useful. You know, I can go in, and I can see the damage, and I can characterize damage. It is sort of visible.

When I look at the small bore piping program -- and until I have a crack, there is nothing to find. I can have fatigue damage accumulating, and I am not going to see squat in my one-time inspection.

And I am not sure that -- well, that one just doesn't strike me as the place where a one-time inspection tells me a whole lot.

MR. AULUCK: Well, with a volumetric inspection, you will learn something.

MR. DAVIS: I will learn something, but I really won't learn -- well, I will learn that I have a crack, but a fairly high fatigue damage without initiating a crack, and not see anything.

There is a much higher threshold there before you get visible damage, and in a case of galvanic corrosion case and the process is going on, I would expect -- well, it is really a cumulative process and I would expect to see something.

And it strikes me again as something where a one-time inspection is useful. I am not so sure that I see it, although the staff likes the one-time inspection for the small bore piping.

MR. ELLIOT: Well, on the small bore piping, it is for piping that we have not seen a problem. We have not really seen a thermal fatigue problem, and we have not seen a stress corrosion cracking problem.

DR. SHACK: So it specifically excludes all the lines like we have seen int he B&W?

MR. ELLIOT: That's right. It excludes all of those. If we have seen a cracking problem, like the Oconee HPI lines, those have a regular inspection program associated with that.

The purpose of the one-time small bore inspection is for small bore that we have not had a problem with, but we could have a problem for either stress corrosion cracking in a boiler, let's say, or a thermal fatigue problem potential for a PWR.

And the one time inspection is looking for whether there is a cracking problem associated with those types of mechanisms. Now, it's granted that if you do more than one that you are going to get more data, but you have to look at it as where are we going

to expend the resources to do inspections.

What we are saying is that we don't expect those, for anything to happen here, but just to be a little on the careful side, we are going to do the inspection.

DR. SHACK: So you really are almost excluding the lines where you have seen problems.

MR. ELLIOT: Right. The lines that we do have problems, we have the HPCI program.

DR. FORD: Would you mind going back to page 20, and just run down that list of the new aging programs just to confirm those. I understand that small bore piping is not a one-time?

MR. ELLIOT: No, it is. It is.

CHAIRMAN BONACA: The only one that is not a one-time inspection is the second one and the second to the last one.

DR. SHACK: Well, now that we have brought this slide back, I can go to the reactor vessel internal inspection. We are going to work our way right back to the beginning of your presentation.

The question that I had here was with VT1, and our friends with boiling water reactors have had lots of experience looking for cracks and have decided that VT1 isn't good enough to see cracks. They go to

a VT1 enhanced.

MR. ELLIOT: Right.

DR. SHACK: So these guys are doing VT1 and ultrasonic, and I can justify to myself, okay, maybe I really can't see a whole lot with VT1, but they are going to do ultrasonic on the baffle bolt, and that is the most susceptible component, and I can live with it.

As I read the SER though, it seems to buy off on the VT1. If I saw a rationale like that in the SER, then it is good enough for that reason, and I think I would buy it. I didn't like the SER where it seemed to indicate that VT1 was really good enough to see stress corrosion cracks.

MR. ELLIOT: That is a good point. In the past we did have VT1 enhanced, and I noticed that in this one we didn't -- that Turkey Point didn't commit to do that.

DR. SHACK: But they did commit to do the ultrasonic?

MR. ELLIOT: Right. Right. That was for the baffle floor bolt. This will be proven out in essence, and --

DR. SHACK: Well, haven't you already proved it in BWR? I mean, GE didn't jump to VT1

enhanced because they loved doing it. They found out that they couldn't see cracks.

MR. ELLIOT: But Turkey Point said that their experience was that they could see cracks. That was the basis of what their experience was.

DR. SHACK: Well, he has a lot more experience looking for cracks in internals than BWRs.

MR. ELLIOT: Well, we will take that into consideration.

MR. HALE: I think also one of the things that we should mention, too, is that with a PWR that you are dealing with a controlled chemistry, and with a BWR it is similar to, say, a secondary steam jet, from the standpoint of the controlled chemistry in a PWR.

The chemistry control is not exposed to some of the issues that you were raising before, such as copper and reactor vessel, and --

DR. SHACK: Well, it is still a question of whether I can see a stress corrosion crack with VT1, or I have to go to a higher resolution. I don't have a problem because you guys are doing ultrasonic, but it is just the more generic kind of thing that the notion of whether VT1 would be acceptable to see cracks that I have sort of objected to.

MR. HALE: Well, there are a couple of things that I would like to clarify. The stress corrosion cracking we are managing with a chemistry controlled program.

DR. SHACK: Well, I should say IASCC.

MR. HALE: IASCC. Our leading indicator is the baffle bolts. That is the area, and it is fluence related. So we are using that as the primary indicator, and we are looking at that first.

DR. SHACK: Well, my comment was more addressed to the staff.

MR. ELLIOT: We understand your comment, but if they find cracks in the baffle bolts, then they have to look someplace else. And if it requires an enhanced VT1, then that is what they are going to have to use.

They are going to have to prove to us that they are capable of detecting those type of flaws. I mean, that is ultimately where you have to head here.

MR. DAVIS: In general, the way we have been going is that you want to substitute a VT exam for a volumetric exam? We have been requiring utilities to resolve a one mil fire with a visual exam.

DR. SHACK: Right.

MR. DAVIS: Which is an enhanced.

DR. SHACK: Which is an enhanced, right. But I don't know why you just don't say that here for the RVI program. If you said one mil against a gray background, I'm a happy man.

MR. DAVIS: Okay.

MR. ELLIOT: Okay. I did not write the SER. You are putting the cart before the horse because we have not looked at the baffle form bolts yet. When we do that, and we see a problem, or if we see a problem, then this becomes something that we will have to consider.

CHAIRMAN BONACA: Well, Barry, we are --

MR. ELLIOT: You are talking about a visual examination for baffle bolts, and that is what we have been doing in the past. Where this crack occurs is at the shank and where it joins the head. And in looking at the head, you are not going to see this crack.

DR. SHACK: Right. Which is why the UT is so important.

MR. ELLIOT: Right.

DR. SHACK: And I am happy with the UT. As I said, the UT is what saves the day as far as I am concerned as far as really making this acceptable.

It's just the notion that I am then going to look with the baffle bolt as my leading component, and if I then want to look somewhere else for cracking, I would argue that I would need the VT1 enhanced rather than VT1.

But you are right. Once you find cracks in the baffle bolts, it might be a new ball game.

MR. ELLIOT: And we appreciate your comments, and Turkey Point does, too.

DR. SHACK: I have made my point.

CHAIRMAN BONACA: No, no, I am just puzzled because I remember slightly the discussion, but I don't remember exactly what was said regarding just visual. What you are saying is that if it leaves the impression that VT1 is adequate, then that is not the right impression.

DR. SHACK: That's what I am saying.

CHAIRMAN BONACA: Although it would be an issue for the SER, but not necessarily for the application.

DR. SHACK: Right.

MS. KEIM: Moving on to the existing aging management programs, and aging encompassed all these programs. We are going to really just highlight the Alloy 600 program, head penetrations, which is going

to be Barry Elliot discussing that.

MR. ELLIOT: We sort of discussed this program earlier in the morning. The reactor vessel head alloy 600 program, the program that is currently in the application is based on generic letter 97-01, and in this sense, it is part of your question of the regulatory process, too.

And that is that 97-01 was concerned about cracks in the nozzles themselves, axial cracks in the nozzles themselves, and that was what we were concerned about when we put out generic letter 97-01.

The industry responded to that concern and set up a program, and the program was leakage detection, and then volumetric inspection of selected components in selected facilities.

And Turkey Point, in their application, complied with that basic program. And that is what this slide says. Recently we had problems at Oconee, and they weren't the nozzle axial cracks. They were circumferential cracks associated with the J-groove weld, and the heat affected zone, a different mechanism than we had previously seen.

So we put out a bulletin asking industry to respond to this mechanism, and industry has responded, and the staff is evaluating the response,

and we will formulate with industry a resolution of the issue.

I just want to make one thing clear to you. The NRC does not solve the problems themselves. We resolve the problem through industry, and that is the process here.

We set up a process to resolve this problem, and the process for license renewal is to set up the processes within license renewal so that the issue doesn't get lost. It just stays within the application.

And in this case, because this is a new issue, the process is to have an open item and then to have a licensee to commit to whatever the program is that the industry develops for solving the issue in the bulletin. And that is where we are on this issue.

CHAIRMAN BONACA: Any questions?

DR. FORD: I just find it very hard to swallow when you say that it is not within NRC's perview. I think the NRC has got to take a leadership aspect.

MR. ELLIOT: Let me just say that the NRC takes the initiative to identify the problem, and then we identify the problem in a way so that industry should understand where we are coming from, and what

we think the problem is, and then we expect to propose solutions to us.

And if we don't like the solution, we say it is not good and we need another rock. And this is the regulatory process. Now, we have research here, and our research is not intended to solve all the problems.

It is intended to look into what the industry is proposing to see if it is proposing something that we can live with, and that is how our research fits in here. There is sort of more of a confirmatory aspect.

Now, there are areas where our research has been not confirmatory. I will tell you that with the reactor vessel, the embrittlement, it was our research. It really wasn't industry research. And with respect to the axial cracks in the nozzles, that wasn't the NRC. That was the industry.

They proposed it and we went back and forth for a couple of years before we got a program that we thought was a good program, and the same thing is going to happen with the bulletin.

It is not going to come out next week, the answer, but the industry has proposed something and we are evaluating it, and we are going to resolve the

issue.

CHAIRMAN BONACA: Any more comments? All right.

MS. KEIM: Next will be TLAAs.

MR. ELLIOT: Okay. I am going to be talking about reactor vessel radiation embrittlement, and under metal fatigue, there is a fatigue issue related to the vessel, and I will talk about that.

Paul Shemanski will talk about environmental qualification of the electrical equipment. There is a whole list of all of the TLAAs up there. All the others don't have open issues. The three that we are going to talk about have the open issues. I'm done.

DR. SHACK: Barry, why was leak-before-break for RCS system piping a TLAA?

MR. ELLIOT: That's because of the cast stainless steel basically, is that -- you know, when they originally did the evaluation did they have saturation or not. And then we have to look and see if there is saturation, and how it impacts the leak-before-break evaluation.

Okay. On the reactor vessel, radiation embrittlement, there are three parts of the analysis. There is the pressurized thermal shock analysis, the

charpy upper shelf energy, and the pressure temperature limits.

They are all related to neutron and radiation embrittlement. The pressurized thermal shock evaluation is done in accordance with our -- with the rule, 10 CFR 50.61, which establishes a methodology for determining the amount of radiation embrittlement, and it establishes screening criteria.

In the case for Turkey Point, they did the evaluation in accordance with the rule, the screening criteria, and the limiting material for their vessel is a circumferential weld in the belt line, and the screening criteria is 300, and the RPPTS value they calculated was 297.4.

So they don't have a lot of margin. So they have to keep track of the fluence and make sure that it doesn't increase the value of the RPPTS above the screening criteria.

DR. SHACK: Do they have flexibility? Do they have a low leakage core ready?

MR. ELLIOT: I would have to ask someone else.

MR. HALE: Yes, we have a low leakage core.

DR. SHACK: And that is actually taken

into account when you calculate your 297.4?

MS. THOMPSON: I don't believe we have for all the future years. We have been operating with a low leaking core for a number of years, but I think that calculation has some conservatism in it, but we do have a low leakage core installed.

But I don't believe we have credited it in the calculations.

DR. ROSEN: You see, that is the problem with this, I think, and that is that you have got 48 effective full-power years on a 68 year license, and that is 80 percent capacity factor.

But plants are running in the 90 percent capacity factors, and so if you run 90 percent, you are going -- well, will you end up with higher than 297.4?

MR. ELLIOT: The critical issue here is not the effective full power. It is the fluence. If you look on our SER --

DR. ROSEN: Well, more fluence comes from more operation.

MR. ELLIOT: Yes, and so that is what they have to reach. They have to keep within that target fluence. They have a target fluence and at the end of 60 years, they have to stay below 4.5 times 10 to

the 19th. I think that is the number in the SER.

DR. ROSEN: Yes. But the point is that they are going to get the 48 effective full-power years long before they get the 60 years total at 90 percent capacity factors, which typically everybody is running.

MR. ELLIOT: But as long as their fluence stays -- the accumulated neutron fluence stays below 4.5, it doesn't matter whether it is 48, or 49, or 50 effective full power years.

It is the neutron fluence which is the issue, and as long as they keep track of that neutron fluence, and they measure what they are getting, versus what they planned on getting, to get the 4.5, then they will be fine.

MS. THOMPSON: We have completed almost 30 years of operation on the two units, and unfortunately in the earlier years at the Turkey Point operation, we did not have that higher capacity factor.

So we actually didn't pick up that much in the way of BFPY. Nowadays, we do operate above 90 percent, and I don't recall the exact assumption that was made for the remaining life of the unit, but it was well into the 90 percents to come up with a projection of 48 being the bounding for end of life.

DR. ROSEN: So for your first 30 years, you add 70 percent capacity factor, and that would be 21 EFPY; and for the next 30 years, you have 90 percent, and that would be 27 more. So that is your 48; 21 and 27.

MS. THOMPSON: And that is pretty close to where we were. We just switch from 19 EFPY to P-T curves in our technical specifications.

DR. ROSEN: So it is going to be a close-run thing down at the end is what I am saying.

MS. THOMPSON: And these curves actually go in our technical specifications, and basically they stay in compliance with our technical specifications, and we have to stay within that 48 EFPY.

DR. ROSEN: All right. So I have voiced my concerns about how close it is going to be before you get to the end of the 60 years in terms of fluence.

CHAIRMAN BONACA: Well, I don't think typically that for this calculation that low leakage is being considered in it. With low leakage, the radiation is so low.

MR. HALE: You have to realize there is some margin in the fluence number, too.

DR. ROSEN: Well, I would like to get to

the margin question. That is where I am really heading. When you talk about 297.4 versus a 300 degree screening criteria, where are the uncertainties in this calculation? Is it 3 percent?

MR. ELLIOT: We threw in a margin of 56 degrees. That is part of the calculation.

MS. THOMPSON: That is a lot.

MR. ELLIOT: That is taking into account uncertainties in chemistry, fluence, and the calculation procedure. We threw that in. That is part of the procedure. There is an uncertainty in the procedure.

DR. SHACK: They build the margin or they build the uncertainty into their acceptance rather than calculate it out separately.

MR. ELLIOT: Right. It is all calculated as part of the calculation, exactly. Okay. Charpy upper shelf energy. 10 CFR, Append G, has requirements for Charpy upper shelf energy, and it must stay above 50 foot pounds, and if you go below 50 foot pounds, you have to supplement the analysis.

Well, Turkey Point is one of the plants that went below 50 foot pounds. They went below 50 foot pounds a long time ago. In the first 40 year license, they provided an analysis, and basically all

they have done in the 60 year license is updated the analysis to 60 years. And that is basically what they have done here.

Pressure temperature limits are done according to Reg Guide 1.99 Rev. 2. Again, it is a transition temperature shift that we are concerned about in the pressure temperature limits. They have submitted curves for approval for 32 effective full power years, and we have reviewed those curves and they are fine.

They gave us another set of curves for 48, and they did not submit them for approval, but it is just a matter of calculating it so they can actually do that.

And one of the issues here of interest is that they didn't use the chemistry factor ratio adjustment. If you have surveillance data, the procedure describes how you are supposed to use the surveillance data.

They didn't do it, and so we are just telling them here that you should do it. Now, it turns out that what they did was conservative for the data that they have now.

They are going to be withdrawing I don't know when, but they are going to be withdrawing

another capsule. They could get another data point. This is one of the plants that actually has the right material in the capsules.

So they can actual measure the amount of embrittlement for their vessels, and when they pull that capsule, we are just telling them that when you do it that you need to use the ratio adjustment factor.

Now, it turns out as I said that this is a benefit for them in this case so far, and based upon the data, they could have had even a lower value than 297.4, or they could have had even a less conservative if they had followed or had used their ratio adjustment.

They are not supposed to use a ratio adjustment unless the data is credible. We have criteria. So they followed the reg guide and the data was not credible, and so they did what they were supposed to do.

But it is potential that when you get new surveillance data that it could change. The data could become what we call credible according to the criteria, and then they would have to use the -- instead of using the chemistry factor they used, they would have to use a different chemistry factor.

That's the point there.

The second point of interest is that normally we think of the belt liners between the intermediate shell and the lower shell, those are the shell courses.

But what happened is that with the longer life, all of a sudden we have a new shell course that is starting to get a large amount of radiation, and right now it is not limiting, but you still have to monitor it.

And that is this circumferential weld between the nozzle belt line and the intermediate shell.

CHAIRMAN BONACA: So it is not limiting now?

MR. ELLIOT: It is not limiting now, but fluences change. They change some geometries or whatever, core geometries, and if they do that, and they have to do a reevaluation, then they should also look at this other weld.

And we have looked at it based upon what they have told us, and it is not limiting. According to the PTS rule, if you change core geometry significantly, you have to do a reevaluation. If they have to do a reevaluation, we would like them to look

at this other weld also.

DR. ROSEN: I was puzzled by the statements in the application on page 4.2-5 on pressure temperature limits. It is in Section 4.2.3., and it is about the need for a separate license amendment which specifically requests approval of the 48 EFPY prior to expiration of the proposed 32 EFPY.

MR. ELLIOT: Do you want me to explain that?

DR. ROSEN: Yes.

MR. ELLIOT: Okay. We give out -- what happened is that it is a tech spec. Pressure temperature limits are in the technical specifications. We only approve the curves for 32 effective full power years.

So they can only operate this plant with those tech specs until 32 effective full power years. If they want to operate this plant beyond 32 effective full power years, they have to put a new tech spec in that is applicable for a greater period of time.

And they are going to have to put in a new set of pressure temperature load for that greater period of time. They have not asked us for that, and we have to approve their tech specs. That is where the amendment comes in. We have to approve the tech

spec amendment.

DR. ROSEN: Prior to 32 EFPY.

MR. ELLIOT: Right, because the 32 will run out.

MR. ELLIOT: And you are out about 21 or so now?

MS. THOMPSON: Yes, in that vicinity.

DR. ROSEN: So you have time.

MS. THOMPSON: We have plenty of time.

DR. ROSEN: You have plenty of time, 10 or 12 years. But this license renewal extension, or whatever you want to call it, although it could be granted, will in fact not give you that full term until you get this changed, too.

MS. THOMPSON: That's correct.

DR. ROSEN: Why don't you get it changed now?

MS. THOMPSON: It was a conscientious decision that we made for some of the reasons that Barry has illustrated. Those P-T curves that were submitted that go to 32 EFPY actually are based on calculations that consider the fluence associated with 48 EFPY.

We elected to make them applicable for the current term only because we needed that tech spec

amendment approved prior to this renewal application in order to continue operating.

Our past curves were only go through 19 EFPY, and we just thought that proceeding down that path would be a more efficient process for us to do at the time, and that we would take it as a second step to move through to get the 48 EFPY.

DR. ROSEN: Let me see if I understand what you just said. You have got a tech spec change already approved to take you beyond 19.

MS. THOMPSON: Right, which we needed to continue operation even today.

DR. ROSEN: So you have that, and now you are in for a license renewal out to 60 years total time, 48 EFPY. But you are not asking for this change at the same time, and I still don't understand why.

MS. THOMPSON: Not at this time, but between now and 32 EFPY, we have the opportunity for removal of additional specimens for analysis of that. We can potentially improve those curves and give the operators more margin.

If not, we have performed the analysis, and we know what the answer is based on this data, and it is the same as we are operating to right now. So we know that we are in an acceptable position, but we

may be able to put ourselves in a better position. And so we decided to take it on an incremental basis.

MR. HALE: I think it is important to note that even new plants when they are licensed, in some cases were licensed with 5 year curves, or 10 year curves, and the reason is that as you move out in time, the more restrictive the curves become from an operational standpoint.

So sometimes you choose, well, we are licensed for 5 years, and before we reach the expiration of that, we will submit a license amendment for 10 years, and it starts narrowing down.

And you can impose, because you have got also your concerns over maintaining subcooling margin below, and also MPSH on the reactor coolant pumps.

So even new plants when they are licensed aren't necessarily licensed for 40 years for their P-T curves.

DR. ROSEN: So you are keeping the highway as wide as you can and for as long as you can by doing this?

MR. ELLIOT: Right. And then it was a timing issue like Liz said. After we had submitted the license renewal application, we needed to change the P-T curves because we were reaching our EFPY limit

on those P-T curves.

So rather than tieing up our approval of those to the 48 EFPY, we decided to go in with a 32 EFPY with a license amendment that was in process and parallel with the license renewal application.

DR. ROSEN: Okay. Thanks a lot.

MR. ELLIOT: Okay. The next issue is metal fatigue, and that normally is John Fair, and Mark Hartsmen issue, but I have an open issue here. And the open issue is WCAP-15338.

DR. SHACK: You get all the vessel stuff anyway.

MR. ELLIOT: Right. So this is the vessel stuff, and in 1970 the industry discovered that for course grain forgivings, that if you had a height and heat input submerged on CLD that you could under beat cracks under the CLD.

The cracks generally are very, very small. They are on the order of a 10th of an inch, and really cannot be detected by ultrasonic inspection. The way this was discovered was from nozzle dropouts, and they could actually visually see the cracks.

This was an issue in the '70s and it is a fatigue issue, in the sense that you have existing cracks and over a certain amount of time they are

fatigued and grow.

And the question is do they grow to a large enough size that the integrity of the vessel is in question. So the industry in the early '70s did an analysis for 32 effective full power years.

And now we have license renewal, and so the industry has to come up with another analysis that has 60 years. It is still a fatigue issue, and we went through this one time before with Oconee, and I don't know if you remember that, but I think it is Unit 1 that has forgings.

And that was a B&W analysis, and this is the Westinghouse analysis that we are reviewing now. We have not finished the analysis. The analysis originally was submitted, and they used an air environment for fatigue crack growth.

We didn't like that. We wanted them to use the water environment, which is a little more conservative. And we also wanted them to look at what PTS events could impact Turkey Point, and they did that.

They did everything that we have asked, and they resubmitted it, and we are reviewing it. It has gone through a lot of review, and I think as you said, Raj, you expect it to be done by --

MR. AULUCK: The middle of next month.

MR. ELLIOT: -- the middle of next month, and that's where we stand. That takes care of everything that I have to say, and now it is Paul's turn.

MR. AULUCK: The last slide is environmental qualification.

MR. SHEMANSKI: I'm Paul Shemanski, environmental qualification on electrical equipment. There are no open items; however, we have two items of interest.

The first one deals with the classification of how the EQ TLAA was done by the applicant. When they evaluated EQ as a TLAA, they used 10 CFR 5421(c)(1)(i), and that basically means that the analyses remain valid for the period of extended operation.

Now, we disagreed with that classification because the staff believes that the reanalysis that were done, the way that we interpret that is that the analyses have been projected to the end of the period of extended operation.

Basically what they did was they extended the qualified life of these electrical components from 40 to 60 years. They did a thermal analysis and

radiation analysis, and we believe that if you look at the rule that that constitutes Paragraph 54.21(c)(1)(ii).

It turns out that it is not a big deal because it has nothing to do technically with the results that they obtained. It is just a difference of what they classify and what the staff classified as the evaluation that was done for the EQ TLAA.

So again there was no effect on the technical adequacy of their evaluations. Just that they decided to classify these as (i), and we believe they should have been classified as (ii). So, no big deal.

The second item of interest deals with the wear cycle aging effect on various motors, and in particular Westinghouse and Joy. These are containment cooler and filtration motors, and containment spray pump motors.

When we looked at the EQ evaluation that the applicant did, we noted that they did not adequately address the wear cycle aging effect. That is the start/stop cycles.

These are large motors, and when you turn them on there are significant electrical stresses on the windings, and mechanical stresses on various

portions of the motor, like the bearing and shaft.

Anyway, we had a discussion with the applicant, and they went back and determined that over the 60 year plant life that they would not exceed 1,000 start/stop cycles.

And they did some further research and found that a EPRI power plant electrical document that claims that motors of this type are good for 35,000 to 50,000 start/stop cycles.

So the fact that they only anticipate only 1,000 cycles for 60 years, it looks like they have a tremendous amount of margin in there. So we accepted the evaluation and the bottom line is that they are going to go into their EQ file for their particular motors.

And they put the EPRI reference document in there so when people look at it in the future they will have assurance that the wear cycle aging effect is minimal. That's it.

CHAIRMAN BONACA: Now, on GSI 168, they are committed -- what is the commitment that they made?

MR. SHEMANSKI: Basically to follow the resolution of GSI 168 and the staff in both NRR and the Office of Research, are working on the options for

resolution on GSI 168, and so they basically in essence committed whatever out of GSI 168, and they would comply with it.

CHAIRMAN BONACA: Any other questions? Okay. Thank you. So, I think we have completed this portion of the application.

MR. AULUCK: Is there any action item for the staff to follow up?

CHAIRMAN BONACA: Well, I heard that insofar as the application is concerned -- and the application is quite specific. I mean, it has ultrasonic in addition to the VT1 in that location, and that is adequate enough.

Are there any other issues that you feel should be action items for the staff?

DR. DUDLEY: I think at the end of the meeting we will need to describe and discuss what you would like to hear at the full committee meeting.

CHAIRMAN BONACA: I would like to do that after we hear about the Westinghouse Topical Reports. All right. With that then, why don't we move into the presentation of the Westinghouse supporting documents.

I had a question generally. For the B&W plants, we have the B&W topical report also about vessels.

MR. ELLIOT: Yes.

CHAIRMAN BONACA: For the Westinghouse plants, we do not have that.

MR. ELLIOT: No. Well, we will let Westinghouse speak for themselves here, but let me just explain to you. The Westinghouse plants, they didn't build any of the vessels. They are built by Babcock and Wilcox, and Combustion Engineering.

CHAIRMAN BONACA: Okay. That's what I thought actually, but I wasn't sure. It was more curiosity than anything else.

MR. HALE: I think one other point, too, is that you have got a much wider variety of plants in reactor vessel designs, two loops, three loops, four loops, and different power levels.

And we in the WOG had a difficult time coming up with a generic report on a reactor vessel. It was pretty high level and so it had to get a little more specific.

CHAIRMAN BONACA: All right. We do have handouts for those right, for the vessels? Yes.

MR. ELLIOT: The Westinghouse Owners Group life cycle management license renewal program submitted four topical reports for NRC review. They were Class I piping and associated pressure boundary

components; reactor vessel internals, pressuring the reactor coolant systems.

The Westinghouse Owners Group people are here. I know that one of them, Charlie Mayer, is here; also from the staff here is John Fair, Frank Rubelick, Mark Hartsmen, Arnold Lee, Hibo Wang, and Mohammed Razuk.

I just wanted to explain to you how I laid this out so you know where I am going. I divided it into three little sections; what was in the application, and which is the first part, and I will go through what is in each WCAP.

And then I have a page or a page-and-a-half of our staff evaluation, and then a final conclusion. So we will start with what is in the application.

And in every case I identified what are the materials that we are talking about here, and then what are the aging effects that were identified as being applicable for these materials and these components.

And then what are the aging management programs for those materials, and again effects, and then if there are any TLAAs, and that's how --

CHAIRMAN BONACA: Actually, they really

followed the license renewal formal literally for each critical component.

MR. ELLIOT: Yes, they did. Well, let me preference this. They did a pretty good job considering where they were. They were in the dark. I mean, a lot of the other B&W stuff were developed as they were the doing the Oconee application. So they had the advantage of hearing a lot of the issues as we were developing them.

In the case of the WOG, a lot of these topical reports were developed before we even had applications. So they were going in the dark, and they were trying to figure out what the issues were.

So what you are going to hear is that we had a lot of open issues and a lot of action items, but that's because of the way that they were operating in the dark here without any previous application to go by.

And then when I go through the applicant action items, the ones are -- you are going to hear a lot of the same ones. We discussed Oconee, and Hatch, and it is the same set of issues.

CHAIRMAN BONACA: I would like to ask that as far as you know is there any plan on the part of the WOG to go back to those four topicals and

disposition some of these issues given now that they have experience on the applications themselves?

MR. ELLIOT: Well, all the items were answered by the applicant.

CHAIRMAN BONACA: I understand.

MR. ELLIOT: So they have included in their application, somewhere in their application, they have addressed all these issues. Like the small bore piping, and the reactor vessel internals program, and the fatigue issues.

Those are all applicant action items that we addressed that were highlighted during the previous applications, and they are being carried out here in their applicant action items for the topical reports.

CHAIRMAN BONACA: Well, what I meant to say is that given what they know now, it could be more dispositioning writing the topical reports, rather than left to the applicants, and that could be convenient to the future applicants.

MR. ELLIOT: Can I just answer that?

CHAIRMAN BONACA: Yes.

MR. ELLIOT: I hope that we are going to have GALL. I hope they are going to implement GALL, and if they implement GALL correctly, and they just say they meet GALL, and where they don't meet GALL.

CHAIRMAN BONACA: I understand.

MR. ELLIOT: And my preference would be that the --

MS. THOMPSON: I think the answer is that the WOG does not plan on going back and revising those and to address those, and there is a couple of reasons for that.

One is that as Steve had mentioned earlier that there is quite a broad spread of design information that is applicable to various different components in the Westinghouse class, versus some of the other NSSS suppliers.

The second reason is that looking at the industry and the staff's resources, we are focused largely on individual applications now, and if we were to put something else on the table for the staff review, we realize that would also take away from their ability to deal with the applications on their table.

So I think it is a balancing act there, and I believe that each applicant will probably be able to address these open items.

MR. HALE: Now, we are also -- the WOG is taking our response and preparing information for all the Westinghouse plants, and they will have that

available as a source of information that here is the way that Turkey Point addressed this issue, and they will have that information available.

CHAIRMAN BONACA: Okay.

MR. ELLIOT: All right. The slide is self-explanatory. The piping and fittings, and value bodies, and bonnets and casings are all stainless steel, and the reactor coolant bolting are alloy steel; and the valve bolting are carbon steel, alloy steel, and stainless steel.

The aging effects identified are fatigue related cracking, corrosion of external surfaces caused by leakage of borated water; and reduction of fracture toughness due to thermal aging of cast stainless steel.

And loss of material caused by wear of the reactor coolant pumps and values bolted closure elements; loss of bolting preload caused by stress relaxation of bolted closures. That is what is identified as the aging effects.

Now, to manage those aging effects, the WCAP takes credit for in-service inspection and test requirements of ASME Code, Section XI, and ASME/ANSI operation and maintenance standards to manage the aging effect of wear.

And in-service inspection requirements of Section XI to manage stress relaxation. The commitments of applicants and licensees to NRC Generic Letter 88-05, to manage corrosion caused by borated water leakage.

And they also would like to have taken credit for analysis methods and inspection requirements to manage fatigue related cracking.

And to identify analysis methods and inspection requirements to manage the reduction in fracture toughness due to thermal aging. The WCAP-14575 identifies TLAAs as fatigue and leak-before-break evaluations. That is the piping WCAP.

The next WCAP is reactor vessel internals, and the reactor vessel internals are stainless steel and nickel based alloys. The aging effects are identified as reduction of fracture toughness due to neutron irradiation of high neutron fluence components.

And irradiation-assisted stress corrosion cracking of high neutron fluence components; and the irradiation creep of baffle/former and barrel/former bolts.

A combination of stress relaxation and high-cycle fatigue for preloaded components; and wear

of components that experience axial sliding and components that constitute the interface between structural components; and void swelling of high neutron fluence components.

The WCAP for these aging effects, the programs are four; for fracture toughness and radiation stress corrosion, cracking, and void swelling.

They take credit for the in-service inspection of the ASME code, and the results from the PWR materials reliability project. That is a program that is going on now, and that is to develop inspection criteria, and inspection methods, for these aging effects.

And I think they also take credit for the in-service inspection requirements of ASME Code, Section XI, of accessible surfaces of PWR core support structures, excluding the baffle/former, and barrel/former bolts, to manage stress relaxation, and wear of keys, inserts, and pins, or they want to take credit for noise monitorings as a way for doing the examination.

Ultrasonic and eddy current examination is proposed per responses to I&ED Bulletin 88-09 to manage the wear of the bottom mount instrument tube

flux thimbles.

And augmented ultrasonic examination is recommended for baffle/former and barrel/former bolts to manage the aging effects of these components.

And they would like to take credit for in-service inspection requirements of ASME Code, Section XI, as a fatigue management program. And then for the internals, the only --

DR. ROSEN: Slow down.

DR. FORD: I have a question. What you are doing is just recording what is in these various documents.

MR. ELLIOT: Yes. Later on I am going to tell you what we agree on and what we don't. I haven't told you that yet.

DR. FORD: Oh, okay. Fine.

MR. ELLIOT: WCAP-14575 identifies fatigue as a TLAA. And the next WCAP is the pressurizer, and there is a whole list of a lot of different materials and components in the pressurizer.

These are pretty interesting components. It has got case and stainless steel, and in case they have alloy steel bolts and alloy steel forgings; and they also have Inconel 182/82, as well as stainless steel in some components.

DR. SHACK: Is that a vintage thing, that the early ones were done with stainless steel butters, and then somebody decided to put some improvements in?

MR. ELLIOT: I don't know that much about the design of Westinghouse. I know that some have -- in the case of Turkey Point, they have stainless steel instead of the 82/182.

And there are some that have the 82/182. It is a vintage question and I asked Westinghouse that, and the answer was vintages, if they have an answer.

DR. SHACK: And Framatome has always stuck to stainless steel.

MR. ELLIOT: Right. But in the pressurizer report, they have a list of which ones have --

DR. SHACK: Oh, they do?

MR. ELLIOT: Yes. I saw that in the WCAP when I read it. So in the WCAP, it has a list of which ones have 82 and which have stainless steel.

And these are the materials. The aging effects offer fatigue related cracking, and primary water stress corrosion cracking of Inconel 82/182 weld metal and sensitized stainless steel safe ends.

The WCAP takes to managing these aging

effects is the in-service inspection requirements to ASME Code, Section XI, and a fatigue management program to manage fatigue.

And then the in-service inspection requirements of Section 11 to manage primary water stress corrosion cracking of Inconel 82/182 weld material, and sensitized stainless steel safe ends. And then the TLAA -- the only TLAA is fatigue.

The last WCAP is the WCAP on reactor coolant system supports, and we are talking about steel components and concrete embedments. The aging effects for these components are loss of material and decrease of strength of steel components resulting from aggressive chemical attach and corrosion.

The loss of material and decrease of strength of concrete embedments resulting from aggressive chemical attach and corrosion. And then stress corrosion cracking of bolting.

The aging program to manage these aging effects are in-service inspection requirements of ASME Code, Section XI, and leakage identification walkdowns to manage aggressive chemical attach and corrosion for steel components.

And then in-service inspection to American Concrete Institute 349 Code, and leakage

identification walkdowns to manage aggressive chemical attach and corrosion for concrete embedments.

In-service inspection requirements of ASME Code, Section XI, to manage stress corrosion cracking of bolting.

And the WCAP indicates that there were plant specific action items; that the applicant must identify program necessary to ensure proper preload is maintained; and the applicant must address the effects of irradiation on concrete components; and the applicant must address inaccessible areas.

The only TLAA here was WCAP-14422, which identified fatigue. That is what was in the summary of what was in the application. I am not going to go through with the entire staff evaluation, but just the areas that I think are important.

The first one is the WCAP on Class I piping and associated pressure boundary piping. We set out applicant action items. We wanted the applicant to evaluate the impact of halogens in insulation on stress corrosion cracking of stainless steel piping.

That is one of the things that was missing and that we thought was not enough description of how it was going to be done. So that is a plant specific

license application item.

We have guidance in that area, Reg Guide 1.36, for non-metallic thermal insulation for stainless steel components. We also wanted them to perform a volumetric inspection of small bore piping that is susceptible to stress corrosion cracking or unanticipated thermal fatigue resulting from thermal stratification or turbulent penetration.

In the past, we have accepted both a deterministic evaluation or a risk-informed evaluation to identify the locations for the small bore volumetric inspection. In the case of Turkey Point, they did a risk-informed evaluation.

And the area we think it was needed was to evaluate the susceptibility of cast stainless steel piping to thermal embrittlement. Since the issue of this particular WCAP, EPRI has put out a report which highlights the criteria, and this criteria is based upon Oregon test data, and the staff has reviewed the EPRI document, and it is EPRI TR106092.

And in a letter dated May 19th of 2000 from Chris Grimes to EPRI, we have established criteria now for evaluating all cast stainless steel to thermal embrittlement.

And we want all the applicants to evaluate

their material using that criteria. Now, remember that I talked about the TLAAs. We want them to perform a plant specific fatigue evaluation. W e didn't accept the total methodology that was in the WCAP. So this is a plant specific action item. And then we wanted them to do a plant specific leak-before-break analysis assessment to assessment margins.

The criteria for this leak-before-break analysis is contained in NUREG 10-61, and the TLAA issue here is thermal embrittlement of cast stainless steel.

DR. FORD: Okay. Barry, on the subsequent ones, you have picked out some significant issues.

MR. ELLIOT: Right.

DR. FORD: What was the quantitative basis for saying that those are significant?

MR. ELLIOT: It is the ones that I like to talk about.

CHAIRMAN BONACA: But why did you choose these?

MR. ELLIOT: Because there are some issues in here that -- well, there are 10. I mean, I could read all 10 of them, and you could read all 10 of them, and I looked at all 10 of them and I said these

are the most significant ones to me.

Now, there are some that are most significant. They are all significant or else they wouldn't be in there. There are three that I consider administrative, in the sense that you bound the report, and do you have an FSAR, and there are a whole bunch of those.

And then there is a couple that I thought were less significant and so I didn't put them in here. And you can go through the list just like I can, and if you think there is one in here that you want me to talk about, go right ahead.

DR. FORD: I recognize about the procedural ones, but I have to put myself in the position of being one of the utilities, whoever it might be. And they have all these address this, that, and what have you.

MR. ELLIOT: They have to address them all.

DR. FORD: Well, they have restricted time and manpower and how do they allocate that in terms of prioritization?

MR. ELLIOT: They have to do all 10. They have to do every single one. They have to answer every single one. I am only doing 10 because I am

standing in front of you now here and I think these are technical issues that I think that are pretty important that I want to highlight for you. That's why.

I just want to highlight the important technical issues for this committee, and I could go read them all, but that would not be highlighting them. I want to highlight the important ones. I think these are very important.

DR. FORD: And did you have a good reason for highlighting them?

MR. ELLIOT: Yes.

CHAIRMAN BONACA: Are you telling the licensee that the others are not important?

MR. ELLIOT: No, they are all important and every one is significant, but these are the highlighted ones.

DR. FORD: I hate to be pushing on this, but it is one of the things that I am getting frustrated about. I have yet to see any numbers in any of these things, and I have yet to see a number or a data point.

I haven't seen one data point in the five months that I have been on this committee, and it is frustrating. And I have no idea what the margin of

safety is, how much you can push that margin of safety based on fact. I haven't seen it.

And that's why I asked you why do you think quantitatively why these are important.

MR. ELLIOT: Because I don't want to see halogens on the stainless steel components.

DR. FORD: Sure.

MR. ELLIOT: And I think that is an important thing that the applicant should take care of. I think that small bore piping -- I can't depend upon a leak-before-break there. So I have got to have something and I want to have some kind of inspection.

And the cast stainless steel, we have a lot of data there, and we want to make sure that data gets implemented as part of the aging management programs.

DR. FORD: Let me ask another question. When the staff reviews these LRAs do they in fact see data?

MR. ELLIOT: We see programs. We only see data if we ask for the data. We see programs, and we see aging effects, and they have to meet the rule.

The licensee has three parts to meet in the rule. They have to have a scoping to show that all of the components are within scope. That the

plants are in scope, and they have to define the aging effects, and they don't have to have quantities there.

They just have to postulate aging effects based upon their experience on what aging effects are.

DR. FORD: I come from a different world, but I fail to see how any regulatory body can make any definitive statement unless you see data.

DR. SHACK: But he does. I mean, as he said, the EPRI report is what he does the cast stainless steel on. And they have reviewed the EPRI report and accepted it, and it has got the data.

But they are saying is that the Turkey Point people have to commit to using the data analysis method to do it. They don't have to see the data over and over again.

MR. ELLIOT: We have data for thermal and brittle cast stainless steel. We know where it saturates, and we set up criteria so that we know what is susceptible and what is not susceptible.

We simplify it. We don't go and say go tell us what is susceptible. We say use this criteria here and tell us what is susceptible.

DR. SHACK: I suppose they could come back in and argue with me.

MR. ELLIOT: They certainly could.

CHAIRMAN BONACA: I really think a couple of things. One is clearly license renewal documents at the end is nothing else but a series of management commitments in the areas where a need for managing aging effects have been identified.

Now, those commitments are then translated into very specifics for reports about what kind of techniques, what kind of locations, what kind of issues, and so on and so forth.

So you can go down to the specifics in each one of them, and it doesn't happen at this level because those commitments are already in existing topical reports, and in core licensing basis, and so on and so forth.

However, I would say -- and we discussed this briefly with some of you during the break -- it is frustrating to a reviewer maybe when one looks at an application or a self-evaluation report on a license renewal.

And I thought that probably it would be worthwhile to have in SERs like a 3 or 4 page description of this logic of what really the intent of the license renewal work is. It is the establishment of commitments, and how that merges together with the current CLB and commitments that exist.

Because I think that would provide some explanation, and it could be almost like three pages, a boiler plate description, that is used in front of every SER so that the reader comes in and has an understanding that the world doesn't start and end here.

I think that there has to be some explanation somewhere, because if you pick up the SER, and you read it through, you don't get that kind of feeling, and I know that we have gone with questions, each one of us, to Mr. Grimes on how do you do this, and he has explained it to us many times. So we are slowly learning and appeasing our frustration I guess that way.

But I think just the communication issue of what the license renewal application is supposed to do in addition to the core relicensing commitments.

DR. ROSEN: Let's talk about frustration again. This is one of the things that you talked about and this was brought up on the circumferential weld, the 297 degrees.

And the answer was we got 56 degrees of uncertainly or margin, and so to think about 56 degrees and added to 241, and you get your 297. That sounds like a lot, but you really have to do an

absolute temperature before you realize if you are going to do any kind of assessment like that.

So when you do it in absolute temperature terms, it is really not that much. It is about 8 percent.

MR. ELLIOT: Well, the 56 is an engineering number.

DR. ROSEN: Well, that is my frustration. I have no clue how you got the 106 degrees as being adequate as an uncertainty in this case.

MR. ELLIOT: We use the least squares method of evaluation. We have two values that go into it that, and we have the uncertainty in the initial RT NDT, which is what you start from, and then we have an uncertainty in the shift in reference temperature.

WE combine those two using the least squares method, and we come up with a margin term. That is how we develop it. If you read the preamble to our safety evaluation, it describes all of that. We describe that in the safety evaluation in that section.

DR. ROSEN: But I don't see the data.

MR. ELLIOT: Excuse me, hold it. The data was the data that we used to develop Reg Guide 1.99 Rev. 2. It is all the surveillance data that we have

accumulated to make that Reg Guide.

There is hundreds of data points. That was originally reviewed I'm sure by the ACRS at one time or another, and endorsed that Reg Guide, and that margin term comes from that Reg Guide. So that is not a license renewal issue. That was an issue of the Reg Guide.

DR. ROSEN: I have not seen the data. You see, I'm not bound by what the ACRS did in the past.

MR. ELLIOT: Well, if you already looked at it, it is a Reg Guide, Reg Guide 1.99 Rev. 2, and there is an analysis the staff did based on the data to find out how in margin term what was to be included.

DR. ROSEN: I can't conclude sitting here without having done all of that, that because it is so close to the screening criteria, that that amount of margin that you built in is in fact soundly based.

What if I were to take it myself and do the analysis over, and I got 65 degrees of margin instead of 56. Then they would be over the screening criteria. Then what would have happened? Tell me what the next step would be.

MR. ELLIOT: If they were over the screening criteria, the rules say what you have to do.

But in all likelihood they would not be sitting here now.

DR. ROSEN: What is that that they would have to do if they were over the screening criteria?

MR. ELLIOT: The Reg Guide says you have to have a supplementary analysis to be done to show that PTS is not a concern. There is a supplementary, and you have to look at your plant specific PTS events, and how you could mitigate those PTS events.

And you have to do a whole basic probablistic fraction mechanics evaluation to show us that you could meet the criteria. We have another criteria, another Reg Guide, where we have established a criteria that we would have to meet with this other if they go over the screening criteria, and you could argue with that.

But that was reviewed by the Commission, and we put it on SECE 82-465, and if they meet that criteria for a PTS event, failure frequency, we would accept that.

DR. ROSEN: We have not done that many of these little license renewals yet, Mario, but can you help me understand how close the other people, the other licensees, have been to the screening criteria for the circumferential weld? Is this the closest one

we have seen?

CHAIRMAN BONACA: No, they are pretty close.

MR. ELLIOT: I will answer that. Most of them are not close. Oconee was very close. One of the Oconee units --

DR. ROSEN: Most of them are not close?

MR. ELLIOT: Yes, most of them have not been close. Oconee was very close. One of the Oconee units was like 2 or 3 degrees. It was like this. It was very close. It was not a circumferential. It was an axial.

DR. ROSEN: You have to remember that the 300 degrees was set up by sort of a bounding analysis for the PTS events. So it has the conservatism built in. I mean, it is a probablistic fracture mechanics analysis, but it is a bounding probablistic fracture mechanics fracture analysis.

And what you would do when you hit the screening criterion is to do a plant specific, and Barry said probablistic fracture analysis. So there really is a fair amount of margin built into the 300. It was intended to be a bounding generic analysis.

CHAIRMAN BONACA: This is really a screening criteria.

MR. ELLIOT: Yes, it is a screening criteria on whether you have to do a plant specific evaluation. That's all it is. It is a screening criteria to determine whether or not you have to do a plant specific evaluation.

If you are below the screening criteria, we think that you have -- because of the way that we set up the curve or the analysis, you have adequate margin.

DR. DUDLEY: Now, would you have done that for all of the licensees for 40 years?

MR. ELLIOT: That screening criteria that I am talking about is done based upon fraction mechanics and it is not done for any amount of years. It is done or based upon fraction mechanics, and postulated transients for BWRs.

This was a generic issue, and it was resolved in SECE 82-465, and this is how we got to this screening criteria. This was looked at for years, and this is how we resolved it.

MS. THOMPSON: Barry, if I could add, I believe that the methodology, the uncertainty terms, the stipulation of what constitutes data that can be used and so forth, is all under 50-61 if I am not mistaken; 10 CFR 50-61 is it?

MR. ELLIOT: That is the rule that governs the criteria, and what you do above the criteria.

MS. THOMPSON: It is quite explicit actually in the process that we follow for analyzing the data, and the staff typically does a confirmatory analysis really to come up essentially with the same values.

And if we were not able to meet the screening criteria, then we would go through staff review again for the subsequent analysis that would be done, and basically those are really stipulated by regulation at this point. I believe it is 50-61 if I recall correctly.

MR. ELLIOT: And the staff has done the review of their analysis?

MR. ELLIOT: We reviewed their PTS's in accordance with 10 CFR 50.61, and they meet it, and are satisfied that they are under the screening criteria of 297.4. We wrote it up in the SER.

DR. SHACK: No, I think he is saying to you do you check their calculations?

MR. ELLIOT: Yes, we check their calculations.

MR. HALE: In fact, if you are interested, we summarized all those calculations in the REI

response.

MS. THOMPSON: There is a specific REI on this particular item, and typically --

DR. ROSEN: Could you give me a reference to it? Not now, but later?

MS. THOMPSON: Yes, absolutely.

MR. ELLIOT: And the reviewer checks the calculation. I want you to understand that we just don't say to you -- well, this is not a hard calculation. For our reviewers, this is what we do. We check out calculations.

This is a very important issue for us, and so we don't want them to go over the screening criteria. So we check that. We have to check the pressure limits and that requires an embrittlement calculation. We check that.

Upper shelf energy evaluations, and if it says above 50 foot pounds -- and in this case it doesn't matter because they are below it.

But if a plant says they are above 50 foot pounds, we check it. We get to check their margin calculation if it is below 50 foot pounds.

DR. SHACK: Right.

DR. ROSEN: And here again I presume that one of the parameters in this regulation, in the Reg

Guide and database, is fluence?

MR. ELLIOT: Yes, definitely. Our Reg Guide for radiation transition temperature shift is a function of neutron fluence, and the amount of copper, and the amount of nickel.

DR. ROSEN: So if any of those shift by any amount --

MR. ELLIOT: Well, cooper and nickel should not shift. That is what they fabricated it with.

CHAIRMAN BONACA: But fluence can change?

MR. ELLIOT: Built into the rule is a stipulating that if you change the basis design of the core so that the neutron fluence changes significantly, they have got to come back and tell us the recalculation all over again.

It is built into the rule. It even specifies the accuracy to which they have to calculate the fluence.

CHAIRMAN BONACA: Right.

DR. SHACK: But the copper and nickel --

MR. ELLIOT: Well, the copper and nickel is another issue. The copper and nickel was a problem for a long time, and we put out a generic letter, 92-01, and then we put out a 92-01 supplement, and then

I think we now have it pretty good.

We know that copper and nickel for all the vessels in the United States, and that data is in the reactor vessel integrity database, and it is on the NRC home page. Well, not home page, but one of those things, and you can get to it.

DR. ROSEN: So let me understand this. If this number had been submitted by the applicant as 299.4 instead of 297.4, it would have said the same?

MR. ELLIOT: That's right.

DR. ROSEN: And if he had said it was 299.9, it would have said the same thing?

MR. ELLIOT: No, we have to calculate it, recalculate it at 299.9.

DR. ROSEN: And they were okay.

DR. SHACK: It is just like ASME code calculation. If the allowable stress is 50 KSI, and you come in at 14.9, you are golden. If you come in at 15.1, you have a problem.

CHAIRMAN BONACA: Well, the screenings say you have to do specific calculations.

DR. ROSEN: Well, we have specific numbers that people have to hit all the time, and there are various rules and codes, and we have essentially built the margins into those acceptability limits.

I mean, that is the real secret. Nobody believes that you calculate the numbers that accurately, but you have put the margin into the acceptance limit. And I got a little excited when I saw numbers, Peter, and then I said, wait a minute, I must have read that wrong.

MR. ELLIOT: This is one of the areas where we actually have numbers.

DR. ROSEN: But then I realized very quickly that I didn't have any numbers. I just had answers. I didn't have any rationale for them.

DR. DUDLEY: On NUREG 15.11, that has a database in it?

MR. ELLIOT: No, it doesn't This is not the database. NUREG 15.11 is the status report. That is the status report on all the reactor vessels in the United States with respect to upper shelf energy, and PTS.

The actual database -- no, that's not it. The database is controlled -- I have to go to Oak Ridge. Oak Ridge has the entire database. And by the way, they are looking at whether or not they should revise all of this. This is all commercial reactive data that was in 1982.

DR. ROSEN: What if they revise all of

this and now the database only supports 295?

MR. ELLIOT: Then we have a lot of plants that are going to have to do something.

DR. DUDLEY: There is an ongoing research project in the Office of Research where they are reevaluating the PTS screening criteria.

MR. ELLIOT: That's right.

DR. DUDLEY: And they are attempting to identify all the uncertainties of the numbers that go into the calculation, and the assumptions for the scenarios that would get you into the PTS event, and wrap those into a single program which comes out with a probability of reactor vessel failure, and the associated uncertainties.

DR. ROSEN: But look at the margins for lower shelf and intermediate shelf. It is Unit 4 to use the worst case at Turkey Point, and under the best case Turkey Point is 64.7 degrees on the lower shelf, and it has a screening criteria of 270 degrees. You have an enormous amount of margin.

MR. ELLIOT: Right, because it has very little copper.

DR. ROSEN: But then when you go to the circumferential weld, it is this tiny little thing.

DR. SHACK: It wasn't a good idea to add

copper to the weld.

CHAIRMAN BONACA: But if you look at the technical foundation of the criteria used to make the judgment, you get comfortable about the conservatism built into the calculation. I mean, the confidence level of the vessel ability to withstand the PTS, this big transient, given that criteria, it is so high.

MR. ELLIOT: Well, it is very low. The failure probability is low.

DR. ROSEN: Well, I am way out of my depth in materials and metallurgy. That's where I rely on Dr. Ford to have the requisite level of confidence.

CHAIRMAN BONACA: Well, if you take any one of those bullets there and you go to the references that support the application, you will find a lot of numbers.

In fact, you lose yourself into those, and then soon enough you commit suicide probably if you want to read them all because there is so much there. So there is plenty of technical information.

DR. ROSEN: But, Mario, my sense of this application is that there is a very broad degree of conservatism and good engineering practice, and prudence in this application.

In this one area, it looks like it skins

right up against the criteria. It as close as one could go realistically, without having to do a whole lot of different things.

CHAIRMAN BONACA: But you have to look at it and it is not intended to be my judgment of fail safe criteria. This actually is a determination of whether or not you do some more homework or not.

DR. ROSEN: And so if you wanted to be conservative, and if you were, for example, at a national laboratory, one could say that we did it at this calculation and it comes out to 297.4, and that is pretty close to the screening criteria, and so we are going to do a plant specific analysis in addition and submit it, just so you get a sense of what the real answer is.

MR. ELLIOT: Well, we already did that, and that's how we got the 300. That's how we did that. We did a lot of probability studies on transients and fracture mechanics evaluation, and that is how we got the 300 and the 270 screening criteria.

DR. DUDLEY: And as I remember, your margin criteria was based on the relationship to the event being less than 10 to the minus 6th probability.

MR. ELLIOT: Well, less than 10 to the minus 6th was the probability of failure we were

looking for of the vessel, and then we threw that -- the mean value came out to be like 210 or something like that for all the studies.

And so we threw the 56 in and it came to 260, and then we had another study for the circumferentials and that is how we did it. This had a tremendous database of analysis to get the screening criteria.

And the analysis had margins in it to get to the 5 times 10 to the minus 6 failure probability, and that's how we got the screening criteria.

DR. SHACK: Putting it into PRA terms, think of it as the difference between the containment design pressure and the containment failure pressure.

CHAIRMAN BONACA: Yes, I would say that there is even more margin there.

DR. SHACK: And in fact a lot of times you will end up with a containment design pressure, like 60, and you hit 59.7, and the main steam line break or large break --

DR. ROSEN: In some plants, you hit 36.

DR. SHACK: They still breathe easy when they hit 59.7.

DR. ROSEN: SECE 82.465 has got the background on how to select this circumferential weld

for screening.

MR. ELLIOT: No, that is the background for the PTS rule. If you want to know how to do the calculation, it is Regulatory Guide 1.99 Rev. 2. But it is also in the rule. And Reg Guide 1.99 Rev. 2 has also been implemented into the rule itself, which is 10 CFR 50.61.

DR. FORD: All right. Can we get back to Turkey Point? On the 11 renewal applicant action items, I recognize that the old REIs was done before this came out as I understand it.

Looking back on it do you think that the REIs took into account those 11 action items? I think Al said there had been some REIs on many of those items; is that correct?

MR. ELLIOT: Yes. The applicant responded to these items, and I looked it up because I wanted to make sure, is Turkey Point SER, Section 3.2.5.2, has a discussion on the applicant action items for the reactor vessel internals.

CHAIRMAN BONACA: What section is that?

MR. ELLIOT: SER Section 3.2.5.2, and that is for the internals.

MR. HALE: The REI response letter was L2000176, and it was REI 3.2.5-4, and all 11 applicant

action items are in that response.

DR. DUDLEY: Could you provide us with a copy of that?

MR. ELLIOT: Of what?

DR. DUDLEY: Of the REI response?

MR. ELLIOT: I can get you a copy.

DR. SHACK: I have a question. Will all of those be on a CD some day with the application?

DR. SHACK: Does anybody know?

MR. KOENICK: No, there is no requirement to update the application once we grant the license.

DR. SHACK: So anybody in the public who wanted to do this would have to track them down through ADAMS?

CHAIRMAN BONACA: Or call and get a copy.

MR. ELLIOT: All right. Continuing on. There were 11 renewal action items for the reactor vessel internals WCAP. I highlighted four of them here.

We want to evaluate the synergistic effects of thermal aging and neutron embriddlement on fracture toughness of cast austenitic stainless steel. The staff's issue on this -- and we have talked to you in the past about this, is that we want them to identify the limiting locations for inspection, and

then utilized information from the MRP program on reactor vessel internal identify the inspection methods and the criteria.

That is our position, and that is also the same position we have for avoid swelling, cracking, and loss of fracture toughness. And another issue that we would like to address on a plant specific basis was their baffle/former and baffle bolting page degradation.

The staff's position here is volumetric inspection of the junction of the bolt heads of the shank is the important place to look for cracks. Visual inspection won't be adequate and you need a volumetric, and MRP is developing an industry program for this issue.

And then as far as the internals, we need a plant specific to achieve evaluation. For the pressurizer, there were 10 renewal applicant action items, and I highlighted only two of them here.

Perform plant specific fatigue evaluation, including insurges and outsurges and other transient lows not included in the current licensing basis.

And then evaluate the potential for bolting to develop stress corrosion cracking. Our position here is that bolting is susceptible to stress

corrosion cracking when the bolting is fabricated, producing a yield stress graded at 150 KSI.

And whether there is excessive torquing of the bolts, an introduction of contaminants and lubricants.

CHAIRMAN BONACA: And then for Turkey Point, you have accepted.

MR. ELLIOT: Yes. They claim that they have procedures to prevent excessive torquing, and they control their lubricants, and that is the basis for our accepting the bolting.

CHAIRMAN BONACA: That's right.

MR. ELLIOT: And then there are 16 renewal applicant action items for the reactor vessel supports. I didn't highlight anything here. If there is something that you would like to talk about, we have people who did the review here. Are there any issues that you would like to highlight?

CHAIRMAN BONACA: Well, the top bullet under pressurizer, that is actually counting -- I mean, looking at actual transients, right?

MR. ELLIOT: Yes, actual transients. Mark, and then John, did the fatigue part of the evaluation.

MR. FAIR: Yes. This is John Fair with

the Mechanical Engineering Branch. What they have done on Turkey Point is that they have a fatigue monitoring program, and what they are monitoring is that the design transients that they assumed in the original analysis do not get exceeded in the period of extended operations. So they did not go back and recalculate anything.

MR. ELLIOT: And our conclusion is that upon completion of all renewal applicant action items the license renewal applicants who reference the WOG reports adequately demonstrate that the aging of the components within the scope of the WOG report can be managed so that there is a reasonable assurance that the components will perform their intended function in accordance with the current licensing basis during the period of extended operation. That is our finding for license renewal.

DR. ROSEN: What are these 16 renewal applicant action items? Are they administrative kinds of things?

MR. ELLIOT: No.

DR. ROSEN: Will you characterize them for me?

MR. ELLIOT: There are technical issues that we want them to address when they submit an aging

management program for a reactor coolant support over and above what is in the WCAP.

DR. ROSEN: Could you pull an example out for me? What are we talking about here?

MR. ELLIOT: Well, we have a lot of them. We have had the 10 here and the 16 there, and 12 there, and so on.

DR. ROSEN: I am trying to get a sense if these are overwhelming issues?

MR. ELLIOT: No, I don't think they are overwhelming. We have reports here. Hai Bo here is the reviewer of the WCAP and wrote the action items. So he can give you some insight.

DR. ROSEN: And I had the pleasure of reading it as well.

MR. WANG: My name is Hai Bo Wang from the License Renewal Branch. I reviewed the WCAP, but I didn't review the application from Turkey Point. What Turkey Point did, I don't know.

The original draft SER had nine action items, and six open items, and my concern was generated to all the work numbers. And we converted all the open items to action items as well.

For instance, the WCAP has pictures for all the components support reactor vessel, and we have

five reactor vessel support configurations.

DR. ROSEN: Now, Hai Bo, what you are talking about is your review of the WCAP?

MR. WANG: Yes.

DR. ROSEN: But my question was what are the 16 renewal applicant action items relative to that WCAP for Turkey Point?

MR. WANG: Well, I have no idea what the renewal action items do. I did not read the Turkey Point application.

MR. HALE: The reactor coolant supports, we had a draft SER at the time that we submitted the application. So we summarized how Turkey Point addressed the open items and applicant action items, all 15 I guess, in the application for that one, because we had a draft SER.

So you will find that in the tables in Chapter 2.

DR. ROSEN: So I look at Chapter 2 of your application, and I find those action items, and what you are just saying, Barry, in this slide --

MR. ELLIOT: I am telling you what my review of the WCAP is. This is a slide that says that we reviewed the WCAP and this is what we found. It has nothing to do with Turkey Point.

DR. ROSEN: Then Hibo is telling me about these things, about one action item.

MR. ELLIOT: And there are about 14 or 15 action items. They are not all like that. There was one issue that I looked up, and there is an issue on strain aging on there. There are other issues, and you just have to look at them.

The reviewer looked at issues, and said these are issues that I don't see you answered in this WCAP.

DR. ROSEN: And FPL has answered them in the application.

MR. ELLIOT: Right.

DR. ROSEN: And those 16 applicant action items are not open items?

MR. ELLIOT: Right. We are satisfied with their answer.

DR. ROSEN: And specific ones that Barry was saying, you know, that Westinghouse identified temporal embriddlement and strain aging as two of the degradation mechanisms that could affect the support.

They ruled out temporal embriddlement on a generic basis because the temperatures were too high, and the applicant had to address whether a strain aging could affect his reactor supports.

MR. WANG: But in the WCAP, they never mentioned -- they didn't say nothing about strain aging.

MR. ELLIOT: So this whole thing here is the staff's review of the WCAP and our evaluation of the WCAP, and where we think the applicant must supplement the information in the WCAP.

And they have supplemented it, and we have reviewed it, and not only that, we have reviewed their reactor coolant system support as part of some program, and found it acceptable, and that's what you heard this morning.

DR. ROSEN: Well, the supports were reviewed when the plant was licensed, I assume?

MR. ELLIOT: No, they were reviewed as part of the license renewal, all within the scope of license renewal. So they had to be reviewed for their aging effects, and for their aging management programs.

MS. THOMPSON: I would like to just emphasize that for Turkey Point that we did not incorporate by reference these particular generic technical reports.

We simply addressed -- we performed our own aging management reviews, and provided that

information in the application, and then these reviews were in process at the time.

So as part of our application, we tried to anticipate questions that may come from the staff, and we addressed those open items or applicant action items that were available to us at the time in our application, really in anticipation of potential questions from the staff.

And for those that were not on the table at the time that we submitted, we addressed those through REIs. But our aging management review really stands on its own merits, and has been reviewed by the staff.

CHAIRMAN BONACA: Let me say if you had to perform the application today, you would take all nine items on the pressurizer, and address them individually, just as you did in this table here. 2.3.3., and have a total correspondence between the topical report that supports it and the application.

MS. THOMPSON: Yes.

CHAIRMAN BONACA: So there was that kind of mishmash, and it was because you didn't have available all those questions at that time.

MR. ELLIOT: We are finished.

CHAIRMAN BONACA: All right. Why don't we

take a break right now, and then come back at 3:15 and talk about the application. I think we have to talk briefly about Westinghouse Topical Reports and our judgment, and we had specific reviewers assigned to some of them. So let's take a break right now.

(Whereupon, at 3:05 p.m., the meeting was recessed, and was resumed at 3:25 p.m.)

CHAIRMAN BONACA: Okay. The meeting is called back to order, and what we need to do now is two things. One, to go around the table for the members of the subcommittee and provide their views, if there is any additional view in additional to what they already provided regarding, first, the Turkey Point application.

And then separately we will talk about the WOG documents, and again provide views on those. Once we have done those two things, we will talk about what we are going to do, and the issue is this application was pretty clear, and pretty thorough.

We have seen four open items, of which really only one it seems to me is a true open item. It is very likely that they are closed in the very short term. In the past, when we had situations like this, we did not write an interim letter.

And when the final SER came weeks or just

a couple of months after the interim SER, and so we pointed out to the Commission that we in fact did not write an interim letter because of that reason.

And we would then write a letter when the final SER comes to us. And then we will discuss that, and then at that point we will talk also about whether or not we need to write a separate letter on the WOG documents, considering that the application from Florida Power did not include reliance or reference to those documents.

And those documents may not be used by other applicants in the future because they may use simply our report. So we will decide on all these things, and let's go around the table, first of all, regarding the applications from Florida Power for Turkey Point.

I would like to have your views and anything new that you may have to what you have already provided with your question and answers.

DR. ROSEN: Well, I have nothing in addition to those, although I would just like to kick them off to make sure that we know what the points are that I think were interesting or important.

First, of course, is the question of the proximity of the calculated RT PTS to the screening

criteria, and how we handle that, or if we handle that in the letter, or even in discussion with the committee, or if the committee chooses to make any kind of reference to that to the commission, I don't know.

That is all to be determined, but at least that is a subject matter from my point of view. The other thing that I thought was interesting is that in talking to the staff and thinking about the large term nature of license renewal, and the need to retain the corporate knowledge of the applicant, and the fact that the staff had not looked into the engineering support personnel training program with regard to license renewal, was sort of illuminating to me.

Now, the licensee did clearly in their remarks, they said that they had dealt with that, and I think probably what they are doing is appropriate. But the staff hadn't tumbled to that, and I rather think INPO hasn't.

If you go all the way back to the INPO documents, and I used to know their numbers, but I have forgotten them now, that define the requirements for engineering support personnel training programs, I will bet you that there is not much about license renewal in them.

So if we can successfully do something to help that get embedded in the industry's training programs for engineers, that will be good for everybody.

Another point that I made and followed up a little bit on in the discussions was the fact that I didn't get a lot of clarity in how equipment used in the emergency operating procedures, and the emergency review guidelines was in fact covered by the staff, in terms of proper scoping and screening, and aging management reviews. Maybe it is because it went by too fast, but --

CHAIRMAN BONACA: You mean the use of ERGs?

DR. ROSEN: ERGs and the daughter, EOPs, that come from the ERGs, and whenever you put something in an EOP, an operator is going to look at this during this severe accident, and you need to think about is that thing that he is going to look at, is it in scope?

CHAIRMAN BONACA: You have to realize that the EOPs and ERGs is an issue that we raised, and specifically the staff had put in their reference to the scoping process EOPs as a document to check for additional information, although by the license

renewal rule it is not in scope really specifically.

DR. ROSEN: Why is that? I don't understand why it is not in scope.

CHAIRMAN BONACA: And the NEI agreed to that, and then NEI agreed and they put it as a reference in their reference attachment in the NEI document.

Now, we also recommended that severe accident guidelines be included as a reference document, and the staff endorsed that, and NEI did not as far as I can tell, because they feel it is a voluntary program and that kind of stuff.

DR. ROSEN: You mean SAMSA is voluntary, but license renewal is not voluntary. I mean, it is voluntary on their part, but the staff doesn't have to grant it.

CHAIRMAN BONACA: Well, the EOPs, they have agreed to look into this, and so I don't know. We may ask them to address this issue with them next week during the full committee meeting, and just simply tell us how they look at them.

DR. SHACK: I thought the commitment that we got from the staff today was probably as much as we could get without changing the rules. If you really want it to define that part of the scope, then I think

you almost have to change the rule.

And it sounds to me like they were sort of doing the best that they could and whatever arm twisting --

DR. ROSEN: The staff has to do that, but we don't have to. We can comment to the Commission on that.

DR. SHACK: Well, we can comment, and I think we said that we didn't need a rule change.

DR. ROSEN: And I think that we probably don't.

CHAIRMAN BONACA: Especially if you take the Westinghouse ERGs. I mean, they go far from your design basis. I mean, they look at the possibility of all kinds of scenarios. So that is an issue that we have to tackle.

DR. ROSEN: But I have this pristine clarity and insight that comes from not being involved so much, and it seems to me that things an operator might rely on during a severe accident late in the life of a plant, the 58th year, what a work, and we ought to have a lot of confidence in all of this. That's all I am saying.

CHAIRMAN BONACA: And we wrote two letters in which we put our position and recommendations to

the Commission, and they were endorsed, but endorsed that these documents would be guidance that they would look at, and not endorsed as a change to the rule to explicitly incorporate those documents. So it would be important to understand how the staff is using them at all.

DR. ROSEN: Well, you asked me what I thought after listening to the subcommittee.

CHAIRMAN BONACA: Well, actually, you are picking things up fast. You already have covered two past letters in a row with that issue, because we really brought it out.

DR. ROSEN: So those are the three things.

CHAIRMAN BONACA: Great. Thank you. Going around the table. Peter.

DR. FORD: I just feel myself capable of answering the questions about degradation loads. I liked the Turkey Point LRA, and I think that the staff identified all of those EOPs that required modifying, et cetera.

So I don't doubt that the regulations will be met, which is all that is required at this stage. My big problem, however, is that I have not seen any data that addresses the kinetics of that degradation.

And that impacts on two broader issues

which is outside the Turkey Point application, and that is the validity of once only inspections. The phenomena that we had identified on the inspections at Turkey Point, they are defensible.

But for the ones that require multiple inspections -- internals and the other phenomena -- they depend very much on the accuracy and the completeness of the various disposition relationships. That is, degradation versus time, et cetera.

And unfortunately the data that we have in the industry as a whole you increasingly find, and especially as far as cracking is concerned, is not adequate, and is of poor quality, and sometimes irrelevant.

And that is more of an industry problem, and it is completely outside the Turkey Point application, and is something that industry is going to have to tackle.

CHAIRMAN BONACA: Yes, that issue would truly be affecting also aging in the current licensing area.

DR. FORD: Absolutely.

CHAIRMAN BONACA: Okay. Bill.

DR. SHACK: I thought that this was a good license renewal application, and I liked the table

format. I thought that the electronic version was quite useful.

And I am not sure that there is any way to get around the thing, but there is a certain amount of jumping. You think they are talking about the reactor vessel head penetration here in this section, but it is really just mentioned here and it is discussed over there.

And you are about to conclude that the discussion is totally inadequate until you realize that you are looking in the wrong place.

DR. ROSEN: You pop the hyerlink and --

DR. SHACK: And on the electronic version, you pop the hyperlink and you get to the right place.

And in the paper version, you kind of look and say, oh, my god, and you are getting ready to send off a nasty-o-gram, and you stumble on the real discussion somewhere else. And I think that is inevitable in something as large and as massive as these things.

The only technical quibble I had was with this thing on the VT1, and again, I think we have discussed with the BWR VIP that you really need enhanced inspections to IASCC or SCC, and although I don't see a problem here because they have got the

ultrasonic for the baffle bolts --

CHAIRMAN BONACA: This is the one for cracks?

DR. SHACK: Yes, cracks in the internals.

CHAIRMAN BONACA: And concerning the SER.

DR. SHACK: Yes, and if the SER said we didn't like this, but it is okay, then I could buy that. But when the SER sort of implies that this is fine and dandy, I am less happy.

CHAIRMAN BONACA: And that is probably something we will mention in the letter, and as a minimum, was a note that we don't believe that --

DR. SHACK: Well, the staff doesn't either. I mean, any time they are really serious about it, they have asked for enhanced VT1.

CHAIRMAN BONACA: Any other comments? All right. I reviewed this and clearly in the perspective of the others, it was a good application.

I mean, for me, it was visibly easy to follow, and I liked some of those tables that allow you to see under 5 or 6 columns, and the component, and whether it is in scope, and the environmental conditions, and the aging effects, and the function.

And for an interested person that wants to look at it -- and I don't know who would be interested

outside, but still that could be -- that would be a useful format.

And I thought that it was quite complete, and I thought that the scoping was effective. In fact, I found in some cases that the scoping went beyond what I had seen before. For example, the spent fuel pool.

There was an effort to define the functions that were complete and covered more ground than other applicants had done before in my judgment.

The screening was also appropriate, and I think the definition of functions was quite thorough. I thought the discussion of environment and aging, or aging effects was good also. I thought the programs were significant.

And again the points that Peter made as to that were absolutely valid, and that really speaks of how currently we operate these plants. So it is true also for this operating plant.

I agree with the findings of the staff. I think that of the four open items that only one is an open item truly. It still troubles me that it is a repeat. I think that it probably in-part is tied to the licensing basis of the specific plant, and how they define things, and is probably beyond my

understanding right now of why it is a repeat issue that comes again.

But in general I thought it was a good application. I do believe again that this power plant in my judgment is a better plant now because it has a detailed series of commitments and an analysis of this type.

And that's why I think it is so important about the point that Steve was making before, that the plant is trying to train the personnel to understand what they have, and the commitments that they have, and what they have learned from it. This is important for everybody concerned.

So before we talk about the WOG reports, we had a situation before where we reviewed an SER and found that it was completely readable and we understood it, and also the application we understood, and we had very few open items.

And we made a decision then not to write a letter, and the reason is that we got the final SER in no time after that, and so we just simply wrote a letter for the final SER.

And we have a choice right now. We can choose to do the same for this application, or to simply write a full report next week. I would like to

hear from you guys on what you would like to do.

DR. ROSEN: Well, let me ask you a question in-turn. What is the timing for the final SER? They said they were moving it up, and working with the staff now to try to --

CHAIRMAN BONACA: The earliest is December, or in January, and we would be writing a letter in the February or March time frame.

DR. ROSEN: That is the schedule we anticipated. It says May now, right?

MS. THOMPSON: We have asked the staff to look at a March of next year decision point for our renewed license.

DR. ROSEN: So that would be February, and our letter would be at least a month before that, and so we are talking about writing something now in October, and we might have another letter in March.

CHAIRMAN BONACA: Well, the value of an interim letter has always been that if we had something that we wanted to communicate -- like, for example, we don't like something, or you should do something else.

DR. ROSEN: Well, specific to this license, and we want to communicate something in general, or generic, yes; but if we had something

specific to this license --

CHAIRMAN BONACA: Well, I don't think we do very much. So my recommendation would be to go to the full committee and tell them that we are not going to write a letter at this time, and the most we could do would be to send a very brief note saying that we have chosen not to write a letter because of the quality of the application and a few open items.

DR. ROSEN: I think that would be better, is to write a brief letter that says that, but also says some things like in our letter which we expect in the first quarter of 2002, we may have some comments about or that could lead to general improvements that came up during the review of the Turkey Point application that could lead to some generic improvements in the process, or something like that.

DR. DUDLEY: Just from the staff's viewpoint, I would rather leave that as an option of something that we can do, because as soon as we put it in writing to the EDO or the Comission, it almost becomes a have to do.

CHAIRMAN BONACA: Yes. Well, my suggestion is that we don't write a letter.

DR. ROSEN: Okay.

CHAIRMAN BONACA: And then we will decide

if we write a brief piece of information, or as we did for Arkansas when I wrote the letter for that, we chose not to write a letter and because, and we pointed out the reasons.

DR. ROSEN: And were the reasons technical or logistical. In this case, they are logistical.

CHAIRMAN BONACA: It was mostly for Arkansas that we felt that the application was very good, and complete, and were very few open items.

DR. ROSEN: Isn't that where we are here?

DR. SHACK: Yes.

DR. ROSEN: So we would say the same thing in this case. We would write a letter that says the applicant's application is very good, complete, and there are a few open items, and we expect a final letter very shortly.

CHAIRMAN BONACA: Well, no. Noel has said no, and --

DR. ROSEN: Well, I think we should write a letter and it should be a brief one.

CHAIRMAN BONACA: Well, we will talk about it next week with the full committee. We will bring it up and decide.

DR. ROSEN: Well, notwithstanding Noel's comment to the contrary, I think I would signal the

fact that it is a learning process for us as well, and as part of this discussion that we have perhaps found some things that we could lay on the table that could either help the staff in the way they review applications, or the applicants and in the way they put them together.

CHAIRMAN BONACA: Okay. So, we will bring that recommendation up to the committee, and the committee may decide to do something otherwise. Now, the second issue is the Westinghouse Owners Group Reports.

We have specific assignments on those reports, and I can speak about the pressurizer one, and I reviewed it in detail, and I felt that it was a good report in several ways. One was a description of all the types of pressurizers that are in the Westinghouse family.

And I think that was quite descriptive of components, and the environment, and the face, and the materials, and really had a form that was a typical license renewal form all the way through.

I liked very much the form where we got together the WOG report with the SER in front of it, and the SER specifically listed in the back portion the renewal applicant's action items. It was very

explicit.

And there was a linkage between those and what the WOG said. So the WOG said only three action items for the individual licensees, and the staff said, no, we disagree with that. We have nine action items, and they put them forth clearly.

And I liked the fact that in the back there was a full listing for the request for additional information and answers to those. So within the report, I believe there was a full feeling for the interaction that took place between the WOG, the staff, and the conclusions.

And that when I looked at this document, and I looked at how it is being used to support something like Turkey Point, especially Turkey Point by relying on it and including it for reference, I thought it would be very well supported, in the sense that it becomes like an integral part of that.

So I thought it was a good document. I could not pass judgment on every single aging effects. I am not an expert on materials so that I could do that, but it seemed reasonable based on what I have seen in the GALL report before.

DR. SHACK: Except for that confusing section in the pressurizer where they talk about the

erosion of stainless steel components, and then sort of in the next sentence decides that it is really not, and I can't figure out the logic, although I agree with the conclusions.

CHAIRMAN BONACA: This is the issue where the staff felt there was confusion?

DR. SHACK: Right, the staff felt it was confusing, and I was confused.

CHAIRMAN BONACA: Well, I thought that I understood what they were saying or where they were going.

DR. SHACK: Well, I understood where they got to, but what I didn't understand is how they got there. But that's okay.

CHAIRMAN BONACA: That's interesting that you are bringing that up, because I thought it was the staff.

DR. SHACK: It is on page 55.

CHAIRMAN BONACA: All right.

DR. SHACK: They have the potential to cause erosion, and then the next sentence says only one component is considered to have flow conditions that have the potential for erosion. So the next sentence contradicts the previous sentence. But the conclusion, when it is all said and done, is something

that I would agree with.

CHAIRMAN BONACA: And at the bottom it says that only one is considered to have flow conditions that have the potential for erosion.

DR. SHACK: They all have it and then it says only one has it.

CHAIRMAN BONACA: Because only one has the flow condition that could justify erosion. The others are not faced by that flow condition.

DR. SHACK: And several are exposed to fluid flows that have the potential for causing erosion. If you understand it, that's fine, because I am a bit confused.

CHAIRMAN BONACA: Well, anyway, that was my feedback on the pressurized items. And now the other reports.

DR. SHACK: Well, I looked at the pressure boundary, and I thought they were good reports, and as you said, I really like this format where we get everything. And that is the usual difficulty here, is that the REIs are off somewhere in ADAMS, and all you see are references to REI 3.5.4.2., and you have no idea what is in there.

CHAIRMAN BONACA: That's right.

DR. SHACK: Now, I was a little puzzled by

some of the things that seemed to be open issues here, and then Barry clarified that by saying that I had not quite appreciated just the time frame that this was all done.

CHAIRMAN BONACA: Yes.

DR. SHACK: And no doubt that things would be a little different if they were doing them after the benefit of a couple of license renewals. But I think they will turn out to be quite useful, although as I said, maybe GALL is even a better way to reference things, but this is still a very useful overall technical package.

DR. FORD: Okay. I did the reactor internals. I also liked the report. I have a few comments that I liked. For instance, the general layout, and the fact that Table 2.2 clearly listed those parts and subcomponents needing aging management reviews.

I disagree that the hold down springs, for instance, don't need a review, but maybe there is a good regulatory reason for that. But that is a minor item.

I would also disagree with the fact that on page 4.1 that cracking and material degradation due to corrosion and stress corrosion cracking is

insignificant. That was written before the Oconee incident, and I assume that would no longer be a believable statement.

And I am assuming that no one would take that as the gospel at this time. And I particularly liked the fact that this would be used as template. I liked the Tables 4.1 through 4.8, which lay out the criteria that should be covered in an aging management program attributes.

They were clear and gave examples for the various components or phenomena -- radiation, stress corrosion cracking, et cetera, and which obviously would be plant specific.

And as I stated before, even though someone said there is data in here, there is not one data point in this whole report. I would love to see some supporting data in any aging management program that would support what the margin is, and how this program is going to ensure within that project. But the report I liked very much.

CHAIRMAN BONACA: But I am sure that the report must have referenced some activities.

DR. FORD: Oh, it does, and the report gives a lot of --

CHAIRMAN BONACA: It has to be planned on

existing activities.

DR. FORD: Absolutely. >From a readability point of view, we have a million-and-one documents pushed in front of us. It would be nice to see, if only two pages, the state of the art, with a couple of graphs in there showing where the data relates to the disposition curves if you are going to use that for an ASME Section XI inspection.

But these sure give the idea that there are some data to back up these inspection results which are being given in these Tables 4.1 through 4.8.

CHAIRMAN BONACA: So we covered the pressurizer, and the internals, and you reviewed which one, Bill?

DR. SHACK: The boundary components and supports?

DR. ROSEN: Yes. I thought this was an excellent document. It has these pictures in it of the support and pictures of the various support configurations. This happens to be one of the best ones, but this is a steam generated support configuration four, and reactor coolant pumps support configuration six.

So I just happened to have that one, and this is a picture of your plant, and then there is a

table that tells you which plants have which configurations.

And then there is another table that tells you which plants are built to which code standards, and just a compilation of all of that must have been a mammoth task. I thought it was very well done.

DR. SHACK: It would have been very nice to have the --

DR. ROSEN: So this table, Table 2.2-2, primary components support configuration classifications for all the plants, and which tells you what configuration of all of the configurations of what each plant has for the reactor vessel, and what configuration it has for the RCPs, et cetera.

And so you can find the plant and go across there, and if you have enough patience, you can get a mental picture of what all the supports look like for each plant.

CHAIRMAN BONACA: And so I even know the size of your pressurizer.

DR. ROSEN: It is bigger than most isn't it? All the others are 84 and ours is a hundred. But it is very descriptive, and I must say that I hesitated to read it, bring a PRA type operating guy, and I finally brought myself to look at it, and it

wasn't all that bad after all.

CHAIRMAN BONACA: So the question I have for you is we have three choices. If we don't write a letter on Turkey Point at this meeting, should we write a letter on these supporting documents now?

And the second option will be to write a separate letter when we are writing also the letter, the final letter for Turkey Point; and the third one is to do what we have done before, although the staff does not like it.

And that is to incorporate comments on these documents at the time at which we write a letter for Turkey Point. That is the way that we did it for Oconee, and referencing the case, the B&W genetic documents.

And also we have done it for Hatch, where we referenced the BWR documents, and also for Calvert Cliffs, where we referenced to see the documents.

DR. SHACK: Well, again, these things are not going to be revised. The SERs are done, and as far as I can see the only incentive for writing a letter is if there is something that you disagree with. And I haven't got anything.

CHAIRMAN BONACA: So my suggestion is to just leave them behind and talk about them when we

reference or write a letter on Turkey Point.

DR. ROSEN: Isn't here another piece of support for leaving them behind and not doing too much with these Westinghouse Topicals, and Turkey Point did not use them, or at least directly.

They explained how they did, but they didn't officially reference them. So I think to pull a letter out of our hat on the topicals at this point doesn't make sense.

CHAIRMAN BONACA: I agree with that. So we have a recommendation to bring it to the committee, and what I would like to do is the following. I would like to talk now about what is going to happen next week.

We have two hours on the agenda, I believe, and I think we need a presentation by the applicant.

DR. DUDLEY: The staff.

CHAIRMAN BONACA: We need a presentation by the staff and to focus on open items, and really a summary of the report.

DR. DUDLEY: Could the staff address some of the questions that have been raised here about concerns?

DR. ROSEN: That would be excellent, as

that was the whole purpose of the subcommittee meeting wasn't it? Was to let the staff know what we think of the application and of their review? So that if there are any questions, they can come back to the full committee and perhaps dispatch them.

DR. FORD: Could I just ask a question? What are we going to do about these documents?

CHAIRMAN BONACA: Right now we are not going to write a letter on those. We are going to comment on those probably when we write the final letter on Turkey Point.

DR. FORD: Bill, you just said that these are not going to be revised.

(Discussion off mike.)

MR. NEWTON: My name is Roger Newton, and I am also Chairman of the Westinghouse Owners Group License Renewal Working Group, and so I am here to answer any questions that you may have concerning the GTRs.

And we can talk a little bit about how we envision them being used on Turkey Point, and that was kind of the first plant to use them, and as was mentioned here, they didn't have the full SERs and the action items on them.

I would expect the next generation of

plants would use them more discreetly, and specifically address the licensee action items like you talked about here.

And the purpose is to define and simplify the review for the NRC, and define what the applicant should be looking at, and that is his guide.

Now, Turkey Point still has to do a full evaluation, but he has a cookbook to compare himself to to see if he has missed anything, or if he found anything that is different.

And that's why every first action item was to say how are you bounded by the WCAP and SER, and if you find something different, you are obligated to then identify it, and to deal with it.

And with respect to update in the GTRs, this is an ongoing issue within the Westinghouse Owners Group as to how much we should do in that area. Right now we have asked Westinghouse that any time something new comes up to put it in the folder related to that GTR.

And if those issues become big enough, or value enough at some time in the future we may say, yes, it is time to do another revision. And would we take that revision through the NRC to get an augmented SER on it, or would we just publish it, those are all

items down the road that we would decide what is worth doing.

And maybe it would be a joint decision between us and the NRC as to whether it is worth doing or not. But those are things that are -- I am just making sure that we do maintain this.

And if something does come up, we try to make sure that our members are aware of what it is so that they can factor it in to their reviews. So, this is not a finished product, and the report is well-defined, but just the management of the issue for the long term, and we plan to keep our eye on each of those areas as part of our responsibility to our members.

CHAIRMAN BONACA: Thank you.

DR. DUDLEY: I did have a chance to go through and identify those items that were raised and that the staff may want to speak to next week.

CHAIRMAN BONACA: And they are?

DR. DUDLEY: The concern about the proximity of the RT PTS to the screening criteria; retention of corporate knowledge in the engineering training program.

MR. AULUCK: This is for the engineering personnel preparing the application; is that what you

are talking about?

DR. ROSEN: Well, yes. And how also that information is transferred to the ongoing staff once the license renewal is approved.

DR. DUDLEY: Also, clarifying how the committee's recommendations about using EOPs in the screening process and how that has been worked into the guidance.

MR. KOENICK: Noel, we need to go back. I know that we have talked about that at past meetings, and we may have written you a letter on that, because the main thing was in deciding the scope the primary path to maintain safety, that is defined by your safety related equipment.

And the EOPs include that safety related equipment that you rely upon for success. But then it goes on and credits additional means to achieve, more or less like second or third ways of achieving that.

And it may rely on equipment that is not safety related, and it gives them other options. But the scope of the rule is set up to ensure that we wold have a path, a guaranteed path more or less to achieve that safe condition.

And so we are trying to maintain that current licensing basis and to ensure that that path

will be there. And the EOPs were included as a reference document, along with others, as a source that if you feel that is a good place to go to get information, and to double-check your other screening and scoping type of stuff that you have done, it is a possible source document.

But it is not a requirement that everything that is included in the EOPs being in the scope of a license renewal.

CHAIRMAN BONACA: And right now it is a source document, and which the answer is not as written which is in the EOP is going to be in the scope of license renewal.

MR. KOENICK: Correct, and doesn't need to be.

CHAIRMAN BONACA: But the EOPs we are looking at because we wanted to make sure that you would find some piece of equipment very important to safety that had been otherwise not considered, just like you look at the TLAAs and VIPs.

MR. HALE: Just for my own benefit, are these items being characterized as an issue with the Turkey Point application?

CHAIRMAN BONACA: This one?

MR. HALE: No, just any of these that --

CHAIRMAN BONACA: No.

MR. HALE: So these are just recommended enhancements?

CHAIRMAN BONACA: With the EOPS, we have recommended them before, and the staff came back and said that they considered them. And we debated within this committee whether we wanted to go all the way to the Commission and ask for a change to the rule, and we decided that it was not appropriate.

And as far as training, again it is a way for us to learn a little bit what is happening, and it is a good question for the staff of utilities, who is likely to ask that question again.

MR. HALE: But the item is for the staff to be looking at applicant training.

DR. ROSEN: And maybe somebody would walk the copy down to INPO at some point.

MR. AULUCK: But the question does not relate to qualification of engineering personnel at Turkey Point, or their training, or imparting knowledge to other plant or site personnel at Turkey Point, right?

CHAIRMAN BONACA: No.

MR. AULUCK: It is a generic question.

CHAIRMAN BONACA: That's correct.

MR. NEWTON: Can I comment on both items? Again, my name is Roger Newton, and one of my earlier hats in the Westinghouse Owners Group was I was the first chairman for the group that developed the emergency operator response guidelines, which the EOPs are derived from.

A few have studied those guidelines and they deal with the accidents, and the design basis accidents, but they also deal with multiple accidents so far down the probability chain, and they go into the plant and say is there anything available that could deal with those.

So when you go down the risk aspects of what you may be using, it is pretty far down the risk chain of some of these things that the EOPs or the ERGs call on.

So that was one aspect that -- and when we talked about trying to eliminate things from a risk standpoint and the license renewal rule, the NRC threw it out. That was primarily the concern over where the emergency operator procedures may go.

And the other aspect was that the maintenance rule did include the EOPs from a maintenance reliability standpoint, and properly relates them of risk in the maintenance rule.

So I think the NRC felt that the EOPs were adequately covered in the maintenance rule, but it was something that the license renewal did not have to address, just like active components.

So that was kind of evaluated and whether it should be in the scope of license renewal, and that was talked about and at that time judged to be already covered adequately.

DR. ROSEN: Now that you say that again, Roger, I remember that is what the staff presenter said, that he thought that the maintenance rule covered that adequately, and that may be all you have to say.

CHAIRMAN BONACA: The reason why we raised the issue was because the concern we had was that you may have a component, like a pump, and the maintenance rule says it is important, and therefore, you are looking at the active component under the maintenance rule.

MR. NEWTON: Well, the maintenance rule looks at the performance of whatever it is intended to do from an active standpoint. Does it supply electricity, or water, or whatever it may be way down the road.

So it covers both the active components,

as well as what is needed to support getting it there, too. The second item, Steve, that I would like to address is the ESP program.

The ESP program is the training of engineering support personnel for your current licensing basis. And in your current licensing basis, does that include license renewal, or the aging effects of the plant includes everything else.

I would expect that once a plant gets a renewed license, and he has to manage the license renewal and the requirements for the long term under this new license, what he will have to do on how to manage that will be rolled into the ESP programs at that time.

But to do it now wouldn't make sense because there is no regulatory requirement to address it.

DR. ROSEN: Well, I agree a hundred percent with the timing, but my point was that I fully expect Turkey Point's license will be amended to provide them with an extended period of operation. I don't think that is much in doubt.

And so they night as well get on with working on what they do to the ESP at this point, and also communicate to INPO that ESP guidance documents

ought to include another bullet under the engineering support personnel training program that says for plants that have obtained license renewal, and here are the things that they should add to this program.

MR. NEWTON: For example, when you make mods to the plants now, you have checks for fire protection, and for EQ, and for everything. There is likely to be a check for is this important to license renewal. It does make sense to put that into Turkey Point now, but once they get their license, it should be there, and ESP should cover that.

DR. ROSEN: Right. I agree with that.

CHAIRMAN BONACA: All right.

DR. DUDLEY: There are two or three more items that I would like to throw out as possible discussions. One was Dr. Ford's concern about multiple inspections, depending on variables such as crack growth, where there is no data available.

DR. FORD: There may well be data available, but not clearly relevant.

MR. KOENICK: Are you asking us to address that at the next meeting?

DR. FORD: No, I don't think so.

CHAIRMAN BONACA: Well, you can raise the issue again, but to ask the staff to address it, we

will have to ask for some formal --

DR. FORD: No, I am not asking for that. My opinion about this application has not changed. It's fine. It's just that from a systemic point of view, I would like to see a brighter picture.

CHAIRMAN BONACA: I think it would be important that you raise the issue again at the full committee, and it is an issue that you have to bring up if you feel concerned about that, but I don't think the staff should address it out of the blue as part of the license application, and I don't think that is appropriate, because it would single out the application as one that has these issues, and that is not the case.

MR. AULUCK: And to keep the focus on the application.

DR. DUDLEY: There was Dr. Shack's issue about the VT1 for PWRs and the acceptability of that.

CHAIRMAN BONACA: It is important because this has not to do with the application, but with the SER.

MR. KOENICK: What I understood that to be was that the SER wasn't clear.

DR. SHACK: The SER accepted it, and I can understand accepting the license renewal application

because again they are going to do UT and it doesn't really matter too much whether the VT1 is effective or not. The UT is really the thing that is going to do the job.

I didn't like the SER because there was no reservation there that VT1 without some enhancement would be able to in fact protect cracking, which is the case that you have always made in accepting the BWR VIP documents, for example.

MR. KOENICK: So it sounds like we need to clarify the SER.

DR. SHACK: Yes, and I have no problem with the application.

MR. KOENICK: We just need to address what we are going to do with the SER.

CHAIRMAN BONACA: We don't need a presentation on that.

DR. SHACK: Well, one of you may need to address it next week.

MR. COUCH: Well, we will go back and look at the SER write-up, and take it as an action to go and look at the SER write-up to make sure that it is clear that we are crediting the UT.

MR. AULUCK: And that can be done at the final SER, but not for next week.

DR. DUDLEY: And then next week a presentation on the open items, with emphasis on the two over one.

CHAIRMAN BONACA: Now, I think what we would like to do now is we should have a presentation by the staff, including also a brief presentation on the four WOGs reports, and then I will have maybe 15 minutes in which to provide a presentation to the full committee on the reason why we are recommending that we don't have a letter at this time, and that it is the conclusion of this subcommittee that it is a good application, and we will plan to write a report.

All right. I think we have it. Any other comments by the members or suggestions for next week's meeting? If not, any other comments from the staff or public?

MR. AULUCK: I have a comment. On the engineering staff training of personnel, and the EOPs, since we already talked about that, do you still want us to cover that next week?

DR. ROSEN: You can talk to Galletti, and he knows about it.

CHAIRMAN BONACA: I think you can mention that since a member of the subcommittee raised the issue, EOPs are utilized solely as a source of

information and state the facts. So if there are no other comments or questions, we will adjourn the meeting now.

(Whereupon, the meeting was recessed at 4:20 p.m.)

CERTIFICATE

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

Name of Proceeding: ACRS Subcommittee on Plant License Renewal

Docket Number: (Not Applicable)

Location: Rockville, Maryland

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

Paul Intravia
Official Reporter
Neal R. Gross & Co., Inc.