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NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

(ACRS)

PLANT LICENSE RENEWAL SUBCOMMITTEE

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TUESDAY

OCTOBER 8, 2002

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ROCKVILLE, MARYLAND

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The Subcommittee met at the Nuclear Regulatory Commission, Two White Flint North, Room T2B3, 11545 Rockville Pike, at 8:30 a.m., Dr. Mario V. Bonaca, Chairman, presiding.

COMMITTEE MEMBERS:

MARIO V. BONACA	Chairman
F. PETER FORD	Member
GRAHAM M. LEITCH	Member
DANA A. POWERS	Member
STEPHEN L. ROSEN	Member

ACRS STAFF PRESENT:

TIMOTHY KOBETZ

OTHER NRC STAFF PRESENT:

RANI FRANOVICH

BILL BATEMAN

TANYA EATON

BARRY ELLIOT

JOHN FAIR

ALLEN HISER

DAVID JENG

CAUDLE JULIAN

PT KUO

KAMAL MANOLY

JAI RAJAN

BILL ROGERS

PAUL SHEMANSKI

SIMON SHENG

JOHN TSAO

HAROLD WALKER

I-N-D-E-X

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

8:32 a.m.

CHAIRMAN BONACA: Good morning. This is the meeting of the ACRS Subcommittee on Plant License Renewal. I am Mario Bonaca, Chairman of the Subcommittee. The ACRS members in attendance are Graham Leitch, Peter Ford, Dana Powers and Steve Rosen. The purpose of this meeting is to review the Staff's Safety Evaluation Report with open items related to the application for renewal of the operating licenses for McGuire Nuclear Station, Units 1 and 2, and Catawba Nuclear Station, Unit 1 and 2.

The Subcommittee will gather information, analyze relevant issues and facts and formulate the proposed positions and actions as appropriate for deliberation by the full Committee. Tim Kobetz is the Cognizant ACRS Staff Engineer for this meeting.

The rules for participation in today's meeting have been announced as part of the notice of this meeting previously noticed in the Federal Register of September 23, 2002. A transcript of this meeting is being kept and will be made available, as stated, in the Federal Register notice. It is requested that speakers first identify themselves, use one of the microphones and speak with sufficient

clarity and volume so that they can be readily heard.

I would like to point out that copies of these presentations are in the back of the room. In addition, copies of the McGuire and Catawba license renewal applications are also available for reference in the back of the room. We have received no requests for time to make oral statements or written comments from members of the public regarding today's meeting.

We will now proceed with the meeting. I call upon Mr. Kuo, Program Director for the NRC Division of License Renewal and Environmental Impacts for opening remarks.

MR. KUO: Good morning. Thank you, Dr. Bonaca. My name is PT Kuo, the Program Director for License Renewal and Environmental Impacts Program. The Staff will brief the Committee this morning on its safety evaluation of the McGuire/Catawba license renewal application. The project manager for this review is Rani Franovich. Ms. Franovich will lead the presentation today, and then we'll call upon Staff experts to provide technical details when needed. There are also technical reviewers sitting in the audience who are ready to answer any questions you may have.

Briefly, the Staff issued the Safety

Evaluation Report with open items for McGuire/Catawba August 14, 2002. There were a total of 41 open items in the SER, but about 70 percent of these items have been either resolved or become confirmatory items. The Staff is still working with the Applicant to resolve the remaining open issues, and Ms. Franovich will talk about the details of these -- about these open items in her presentation later.

During the last ACRS meeting on license renewal, the Committee indicated an interest in the license renewal inspection process. We have invited Caudle Julian of Region II to make a presentation today for the license renewal inspection process. Mr. Julian is the Team Leader for the license renewal inspection for Oconee, Hatch, Turkey Point, North Anna and Surry and the McGuire and Catawba. He also provided the training for the license renewal inspection for the inspectors in other regions. I'm glad that Caudle can -- is able to take time off his busy inspection schedule to come here to make the presentation.

And with your permission, now I'm asking Ms. Franovich to make the presentation.

CHAIRMAN BONACA: Yes. Before we move into that, let me just ask you a question.

MR. KUO: Sure.

CHAIRMAN BONACA: We've been asked by the Commission regarding the effectiveness and the efficiency of the process, and we're reflecting on it to provide an answer in the future to that question. We have seen some applications where open items have come -- I mean SERs have come to us with maybe three, four open items. And then we have this application coming to us with 42 open items, and, of course, as you can imagine, that raises a question in our mind of what's happening there? Is it because the package came too early for our review? Is it because there is something about lessons learned which is not being utilized, particularly by an Applicant that already has significant experience with the process as Duke, because they already get license renewal for the Oconee units.

So at some point we would appreciate your perspectives and the Applicant's perspective on this issue because we would like to learn about that. Is the industry moving towards a more effective and efficient process or are we still encountering the fickelties which we would like to understand?

MR. KUO: Yes. Actually, Ms. Franovich is going to talk about the whole process and about the

nature of the open items and how many have been resolved and all that. She will go through all that.

CHAIRMAN BONACA: Thank you.

MR. KUO: You're welcome.

MS. FRANOVICH: Okay. With that, I'm Rani Franovich, the Project Manager for the Staff Safety Review of the license renewal application for Catawba/McGuire.

Before I get started I wanted to --

MEMBER ROSEN: Would you use the microphone?

MS. FRANOVICH: I have one on here but I'll use this one too. Before I get started I wanted to give a little background on me. I've been with the NRC for 11 years, spent eight years in Region II. Six of those years were at Catawba Nuclear Station as a resident inspector, and I certified on McGuire, so I'm pretty familiar with these two ice condenser plants. I've been the License Renewal staff for just over a year, and with that, I'll make a couple of opening comments.

The first is on the agenda. I apologize for a correction in the agenda. The opening remarks were actually made by Dr. Bonaca, so I apologize for that. Also, there are some changes that are fairly

recent in the presenters. I will be doing more of the presentations than we originally planned. So the presentation slide with the agenda is correct. And I'm just going to go through briefly the agenda. The times we should still be able to stick to.

Okay. The license renewal application for McGuire/Catawba was submitted to the Staff on June 13, 2001. McGuire Nuclear Station is located in Mecklenburg County, North Carolina. It's a four-loop Westinghouse ice condenser plant. McGuire Unit 2 operating license currently is scheduled to expire in 2023, so for McGuire Unit 2, the Applicant came in for an exemption from our requirement that a plant have 20 years of operating experience before they come in for renewal. Same thing for Catawba Units 1 and 2. And these exemptions were approved by the Staff.

MEMBER LEITCH: What were the reasons for those exemptions?

MS. FRANOVICH: The reason why the Applicant requested them?

MEMBER LEITCH: Yes.

MS. FRANOVICH: I think I'd like to defer to the Applicant to answer the question.

MEMBER LEITCH: We can address that question later.

MS. FRANOVICH: But I can talk about the basis for the Staff's approval of the amendment, or the request.

MEMBER LEITCH: I was just curious why it came in earlier than we currently expect.

MS. FRANOVICH: Can you cover that, Greg?

MEMBER LEITCH: We can address that later in the session. Thank you.

MS. FRANOVICH: Okay. Sure. I wanted to talk briefly about the principles of license renewal, which essentially state that the regulatory process that we're using now is adequate to ensure that license bases of all currently operating plants provide and maintain an acceptable level of safety. And plant-specific licensing basis must be maintained during the renewal term. These principles are useful for the Staff because they guide the Staff to focus on aging management rather than current operating issues or current performance issues.

We have had intervenors in this project -- Blue Ridge Environmental Defense League and Nuclear Information Resource Service. Both of these groups came in with a large number of contentions. Two were admitted by the ASLB, the Atomic Safety and Licensing Board. The Staff appealed and Duke appealed both of

the contentions. The Commission since reversed the contention of potential use of MOX fuel at Catawba/McGuire, and we are currently in abeyance on the severe accident mitigation analysis for station blackout events. I just wanted to touch on that briefly.

CHAIRMAN BONACA: I have a question.

MS. FRANOVICH: Sure.

CHAIRMAN BONACA: I think on Page 312 of the application it stated that the aging effects identification process assumes that license activity is in accordance to current licensing basis, e.g. use of low enriched uranium dioxide fuel only. What does it mean if plants transition to MOX fuel?

MS. FRANOVICH: Well, this is what we've spent a lot of time discussing with the Petitioners. Right now their licensing basis is that they use the low enriched fuel. They haven't come in with an amendment request to either burn the lead test assemblies for MOX or burn the batch fuel for MOX. So Staff has to rely upon the current licensing basis at the Plant. It's still speculative in nature as to whether or not they actually will be using MOX in the reactors. So if they do come in for a license amendment request to use MOX, that is when the Staff

will address the effects on aging, assuming that they receive a renewal operating license and their operating term is another 40 years.

CHAIRMAN BONACA: So I mean -- so really there is no process right now to reopen that. The process would have to be established.

MS. FRANOVICH: Correct.

CHAIRMAN BONACA: Okay. Thank you.

MS. FRANOVICH: Sure. Okay. Before --

MEMBER POWERS: Do we have any reason to think that use of MOX fuel would accentuate any aging effect?

MS. FRANOVICH: Well, I think, and I can let my technical experts jump in if I'm incorrect here, but we don't have any information from the candidates that might be using MOX fuel to really know, and we would expect that information to be given to us as part of the amendment request package. I'm not sure if the Staff really knows much at all about what the potential effects of MOX fuel use at these two plants would be, but I'll open the floor to any Staff that wants to comment on that.

CHAIRMAN BONACA: Well, my main question was regarding the reactor vessel internals.

MS. FRANOVICH: Right. There are certain

--

CHAIRMAN BONACA: And the reason why is that there is a program here in this application and lengthy, but it really relies on the Oconee experience at the inspection, so that's why it came to mind because I don't know if that may require something specific to these units.

MS. FRANOVICH: It may, it may, but of course that would come up in the Staff's review of the amendment request package. If it comes in, that's when the Staff would review it. And the package would have the materials that the Staff would need to review on those effects.

CHAIRMAN BONACA: So, essentially, you would -- no, that's okay. I don't need to --

MS. FRANOVICH: Okay.

MEMBER POWERS: It seems to me that the French are migrating over to use of MOX fuel. Have they seen anything altering the aging of their facilities as they migrate towards MOX?

CHAIRMAN BONACA: Not that I know. Not that I know, but it's more -- I already have questions about the full dependency of the reactor vessel in inspections on Oconee. I would like to hear more about it when we get to those, you know, why are they

applicable in any way and form to McGuire and Catawba. Maybe there are good reasons, but they're not necessarily spelled out in the application. And so this puts a little additional twist that says, you know, I would like to hear more about is there any effect you would expect from MOX fuel, and maybe the answer is no, but I think it pertains in that kind of open question about there isn't any specific reactor vessel inspection, it seems to me right now, that for internals that focuses specifically on McGuire and Catawba, and this is an additional change that may explain to me why we can do without that.

MS. FRANOVICH: Right. I understand your question now, and I would hope, but this is still speculative in nature, that the package would address whether or not they would still use the Oconee internals inspection program because of this unique operating condition for McGuire and Catawba.

MEMBER ROSEN: I'm uncomfortable going past this slide without knowing whether we're going to have a full exposition of the last bullet on your slide on severe accident mitigation analysis for station blackout sometime in this discussion today.

MS. FRANOVICH: When you say full exposition, I think what we were prepared to talk

about is that this particular contention involves a generic safety issue, I believe it's GSI-189 on combustible gas control. It's a current operating issue, and as far as the license renewal process, this particular contention is held on abeyance, in part -- well, it's because the Commission had reversed partially this contention as well. There was a part of the contention that had to with the dedicated line that would be made available for McGuire and Catawba from hydro units in the event that off-site power were lost and diesels were not available. That part was reversed by the Commission.

The part that's still in the hearing process has to do with whether or not Duke considered information from the Sandia report on direct containment heating. The Staff and Duke has asked the Commission to define what they mean by Duke should consider the information in that report or the contention is correct in asserting that Duke had not fully considered that information. That's why we're in abeyance now. Since that time, there have been RAIs, responses from the Applicant addressing the information that's in that Sandia report. So we're looking for guidance from the Commission on to what extent is further evaluation of that information

needed?

MEMBER ROSEN: But your Licensee and Applicant is asking for a license renewal without that contention being resolved.

MS. FRANOVICH: Well, the License Renewal Staff review process pursues a parallel path to the hearing process. But the renewed operating license will not be issued until the hearing is resolved, the outcome of the hearing is known.

MEMBER ROSEN: Well, this is a bit of a process problem, isn't it, for ACRS? We're asked to write a letter based on what we hear now, and yet some matter of some significance remains --

MS. FRANOVICH: That's a good point.

MEMBER ROSEN: -- on the table. so I don't understand the process that we'll use. Perhaps it's not something we discuss with the Applicant or the Staff, it's just something we need to talk about internally.

MS. FRANOVICH: Good point. Shall we go on? Okay. Before we issued our formal RAIs, and this is to address your question on efficiency and effectiveness, Dr. Bonaca, we had a number of conference calls, 21 in fact, with the Applicant to discuss the Staff's questions or concerns about

information in the license renewal application. We were able to resolve a number of open items -- not open items but potential questions with that method. The Applicant had an opportunity to clarify information that was in the application or direct the Staff to areas of the UFSARs or the application to find answers to the Staff's questions.

After that process, we issued 273 official RAIs, or requests for additional information, and in these slides, the next two slides, I've just categorized them by discipline. Duke provided a response to our formal RAIs between March 1 and April 15, 2002. And in addition to our RAIs, we also applied the scoping methodology review audit, which one of the lead reviewers will talk about in a minute here. That was back in October of last year. During that audit, we looked at how they evaluated seismic II/I scoping.

We also used two inspections: The scoping inspection, which occurred in the spring of this year, and the aging management review inspection, which occurred in the summer, one week at each of the two plants. And with that, I'd like to turn the presentation over to Caudle Julian so he can talk with you a little bit about the License Renewal Inspection

Program.

CHAIRMAN BONACA: Let me ask a question before that.

MS. FRANOVICH: Sure.

CHAIRMAN BONACA: Just your impression. We have transitioned from early applications that included two volumes or three volumes to one that is quite condensed and seems pretty efficient the way it has been put together. But we have seen also a large number of RAIs. Is this number of RAIs due to the fact that information is not being provided just because of the format, the condensed format in it, or is it because of other reasons?

MS. FRANOVICH: Yes. I understand your question, and I think the format may have something to do with it. I know that some of our technical reviewers are concerned that the applications are providing less and less detail over time. Another thing that may have to do with it is that the Staff is getting a lot of applications in at one time, and so we're looking to contractors to help provide some of the review. So sometimes there's a learning curve for the contractors as well. But this is the volume for the technical information and the application. It applies to both Catawba and McGuire, it's one

application, and it is a very condensed source of information. But I think those two and the fact that we're using some contractors, some newer staff and the fact that applications are getting more scarce on the details is probably the best explanation for why we have this number of RAIs.

CHAIRMAN BONACA: Well, I think it's something we have to understand as we go forth, because we're seeing more and more condensed applications and we see a surge in RAIs and then we see a surge in open items, and some of them, I am convinced, is just a question of communications.

MS. FRANOVICH: Yes. I would tend to agree.

CHAIRMAN BONACA: So we've got to understand as we go towards a more standardized approach using GALL whether we are getting better or worse.

MS. FRANOVICH: Right. Achieving the efficiencies that we anticipated.

CHAIRMAN BONACA: Absolutely.

MS. FRANOVICH: Right. That is certainly a question that we're looking at. It will be interesting to see how the GALL applicants compare to some of the pre-GALL applicants and the number of open

items and RAIs.

CHAIRMAN BONACA: Thank you.

MS. FRANOVICH: Sure. With that, I'll turn it over to Caudle.

MR. JULIAN: Thank you. Can you hear me okay? My name is Caudle Julian from NRC Region II, and I've been involved in license renewal inspections from the start. It's about half of my job. The other half is working in the Division Reactor Safety in Region II.

We have compiled a Manual Chapter 2516, which is the License Renewal Inspection Program, and I'm sure you've probably seen copies, it's been around for a long, long time. It was put together for the first inspections, which we did at Calvert Cliffs. Under that Manual Chapter there's an inspection procedure, only one right now, 71002, and it specifies how we will do the inspections. For each site, we do a site-specific inspection plan, and I compose that, or have in the past, as a team leader. I draw from the applications quite heavily, but we put together a specific list of what we're going to look at, what systems we're going to look at and then later on what aging management programs we're going to look at. And that is dually approved by a division director in

Region II and a manager in NRR.

The review level for that has gone down --

MEMBER LEITCH: When you say what systems you're going to look at, is that an audit kind of basis; in other words, you pick certain safety-related systems, presumably, to look at?

MR. JULIAN: Yes.

MEMBER LEITCH: Typically, how many systems would that be?

MR. JULIAN: Gosh, I hate to throw out numbers, but I'm going to say 20 or 30.

MEMBER LEITCH: Oh, okay.

MR. JULIAN: We take a large sample. We have been in the past. Because I found in my experience that in looking at the scoping and screening process during our inspection, it's getting easier to cover because the applicants are very conservative. They tend to put more things in scope than not. And so we could take quite a large sample of site systems.

MEMBER LEITCH: Now, to what extent does this inspection look at procedures and paperwork versus actually looking at the physical hardware at the plant?

MR. JULIAN: It's a mixture. I'd like to

kind of explain that as I go along if I could.

MEMBER LEITCH: Okay. Sure. Sure.

MEMBER ROSEN: Before you go much further, I'd like to know how you decide what your criteria are when you're making up your plan for what systems and things you look at.

MR. JULIAN: The criteria is, again, a site-specific one. Our inspection procedure, 71002, says we will take at least half of the ones that the applicant brings in scope. We're actually going more like I'd say 80 or 90 percent. The criteria that we've used in the past is we take all the ECCS systems, for sure, the major things which you expect to be important, the reactor coolant system, the reactor vessel, all those things are always included. We include as many structures as the applicant says is in scope, and that's typically very conservative. They put many, many things in scope. It would be hard to argue whether or not the auxiliary building, for example, is in scope, so it's nearly always there.

MEMBER FORD: So to take a specific example, in the SER the discussion of the pressurized valve support lugs, whether they were in scope or not, and the applicant made the argument that they were not in scope because there was some piping support systems

which took in fact the place of the safety-related component. In that particular -- then the Staff agreed with the applicant.

MR. JULIAN: I'm not familiar with that issue. Are you Rani?

MS. FRANOVICH: Well, that was as the result of an RAI, I believe.

MEMBER FORD: It was, yes. To answer the two previous questions, in using that specific example, did the Staff agree with the applicant because they just went and looked at the drawings or did the look at analyses to show that the pipe supports were an adequate safety-related function? Did they look at the fact that the pipe supports were embedded in the concrete and that there is no degradation? I mean to what depths did you go along with their contention?

MS. FRANOVICH: If I could ask you to hold that question just until we can get through Caudle's discussion of the inspections, and when we start talking about the Staff's review of Section 3.1, which is where I believe that issue comes up --

MEMBER FORD: Okay.

MS. FRANOVICH: -- we'll pick it up again.

MEMBER FORD: Great. I'll bring it up

then, because you're talking about this inspection manual, procedural manual, and I wondered if that was covered in this manual. To what degree of depth do you go?

MR. JULIAN: well, I think those are probably two separate issues. I'm not familiar with the RAI, unfortunately, that you're speaking of.

MEMBER FORD: Okay. Wait until the next items.

MR. JULIAN: Okay. Let's see, moving on, we've participated with NRR in following the standard 30-month schedule. The resources that we have used so far are a team of five to six inspectors depending on how many are available. I typically have a gentleman from NRR who's in the room here with us who's been doing my structural inspection who comes along with us. And in Region II, Luis Reyes, our regional administrator, thinks very highly of this program, thinks it's very, very important, and so he's supported us very strongly, and we've been able to keep together the same team, basically, of inspectors going plant to plant, and that helps a whole lot for continuity.

Scoping and screening inspection, we did a one-week visit. In this case, we went for the Duke

corporate office in Charlotte, because that's where they're engineering staff is and where they were doing their work. In the past, we've gone out to the site to do this audit, but in this case it was convenient to work down at the corporate office. We go to wherever the material is and where it's effective and efficient for our Staff and for the applicant.

We picked, as I said, a sample of systems and structures inspected, and the objective of this inspection is confirm the output, to confirm that the Applicant included all systems, structures and components required by the rule into the scope of license renewal. They're typically rather conservative. There will be some systems that we select to look at which are noes. The applicant has determined that this particular system is not in scope. Those are typically the ones that we have discussions with the applicant about. Why not, why shouldn't this be in scope?

The major review that we have to look at for the scoping and screening is the plant drawings that they send along with it. The send along with the applications now typically a set of marked up drawings, which are typically color-coded, you may have seen some of those, that describe the boundaries

of what is in scope for a given system. Those have not been determined to be part of the application but they're a very smart way to understand what the applicant says is in scope and is not. Without it, it's very, very hard to such a review.

Calvert Cliffs, for example, the application was nothing but a list, lists and lists and lists and lists of components, and you're comparing that to equipment lists at the plant, and so that's very, very hard to do. The drawings themselves make is quick to run through systems, and typically if you'll pick one that's inherently in safety injection, for example, it will all be in and so you can very quickly go through that.

MEMBER ROSEN: Now, when you're looking at drawings, you're looking at piping and instrument diagrams?

MR. JULIAN: Typically, yes.

MEMBER ROSEN: But you don't go on and look at, say, structural drawings or piping isometrics or electrical elementary drawings or all the other subsidiary sets of drawings that support the piping and instrument diagrams.

MR. JULIAN: Typically, the biggest bulk of them will be piping and instrumentation drawings.

We also have certain structural drawings, but usually the structure drawings will be kind of limited, they'll be more like a site layout, and the auxiliary building and the reactor building will be colored in. And, indeed, most applicants do include electrical one-line drawings. We have not had occasion to look very much at isometrics. If we have a specific question about how is something arranged, then we can ask the applicant to go get us a copy of it and we'll look through a specific isometric. But those are not typically included in the group that they send along.

MEMBER ROSEN: Do you worry at all that just using the piping and instrument diagrams may lead you to a narrower scope of review than if you had used the full set?

MR. JULIAN: I don't really think so because the current status is that the applicants are being rather conservative. There's very few disagreements that we get into, and those tend to be on the fringes of the systems.

MS. FRANOVICH: And I think the answer to your question may be where the Staff's safety review augments the inspection program. The Staff in the application reviews tables that contain the systems and the structures that were not included within the

scope of license renewal, as well as the systems and structures that were. And so the Staff really kind of in-house evaluates for those things that were excluded whether or not they were excluded appropriately, and that kind of augments what the inspection team looks at. Does that make sense?

MEMBER LEITCH: Let me understand. These marked-up drawings then are not part of the document material. They're an aid in your review, but they're not formally docketed.

MR. JULIAN: That's correct.

MS. FRANOVICH: Actually, I think they are docketed. They are docketed.

MR. JULIAN: They're docketed, but they're not a part of the application is my understanding.

CHAIRMAN BONACA: And they are the source of the list of components, right? I mean you're pulling out those components from those drawings.

MS. FRANOVICH: Right.

MR. JULIAN: These drawings depict which components will be in scope.

CHAIRMAN BONACA: Yes. That's right.

MEMBER ROSEN: I need to follow-up my question a bit. If you're using a piping and instrument diagram for an ECCS system, for example,

then you pretty much have most of the drawing in scope because the boundaries show it that way, you could pick a piping isometric for that same system and take a point off of the piping and instrument diagram and go to the piping isometric diagram for that point or that area, let's say, on the pipe, and then say, "Oh, well, here is a support, a major support for that ECCS line." That support now doesn't show on the piping and instrument diagram, but it's there in the plant, and it's shown on the isometrics. Now, how does that support -- just as an example now, I mean I could take all day to talk about these things, I don't intend to but I could -- how does that support now get included in what you look at?

MR. JULIAN: We have not pursued it that much to that depth usually, and the reason is because it would be overwhelming. You could go and go and go for months and months and months doing just what you said again and again and again. Typically, again, the licensees' applicants are very conservative, and they will typically say all supports are in scope.

MS. FRANOVICH: The answer to your question is that that's part of the Staff review in headquarters. The inspection team does not look at that level of detail. But the Staff evaluates the

scoping and screening methodologies that were used by the applicants to determine to what extent were structural supports or seismic supports brought into the scope of license renewal. So it's really part of the scoping methodology that the staff evaluates here in headquarters to make sure that they included all of those things. A lot of that methodology is described in the application, but we've also had RAIs and methodology audit to make sure the Staff understood the criteria that the applicant applied to scoping and screening, seismic II/I components as well as structural supports.

MR. JULIAN: And a more direct answer possibly is we could do that but if the applicant says all supports on safety-related piping are in scope, we agree. And so there's no reason for us to disagree over something we agree on. And so we haven't needed really to go to that level of detail to debate with the applicant. Very rare occasions we'll get into something of that nature out on a periphery of a system where a safety-related system interfaces with non-safety-related. And we've put a criteria for that that says you need to move downstream from the interface point to one support, the first support, which is seismic support in the non-safety area, and

that's the boundary. And I think the industry has pretty well agree with that. We find it very conservative. Once they say all supports are in, there's no reason for us to pursue anymore we've found.

MS. FRANOVICH: Does that answer your question?

MEMBER ROSEN: I hope so.

MS. FRANOVICH: Okay.

CHAIRMAN BONACA: Let me just ask a question specific to the application. In the SER, on containment air return exchange and hydrogen skimmer system, the Staff identified certain duct work that was not included and should have been included. And the response to that was that the duct work doesn't exist on the site. Does it mean that there is a configuration management issue there? I mean is that something defined in drawings that is not --

MS. FRANOVICH: Again, that's another Staff RAI that is not part of the inspection process, but I believe that that is a system that has hard pipe rather than ducting.

CHAIRMAN BONACA: Okay. There is some other place on the auxiliary systems where there is some loose ends there.

MS. FRANOVICH: Okay.

CHAIRMAN BONACA: And, you know, when you perform inspection you don't have the sense that there is a configuration management issue there where there are certain pieces of equipment which are represented and are built and you don't know what's up?

MR. JULIAN: I don't believe so. I'm not familiar with that particular RAI, but that sounds like one of your communication issues that you mentioned.

CHAIRMAN BONACA: Well, I mean, no, that's very specific. It says in the SER that they looked at the drawings, there is the duct work, so they asked why wasn't this scoped, and the answer was, well, it doesn't exist, it's not implemented.

MS. FRANOVICH: Well, yes. We'll have to find where that is in the SER to help you with it.

CHAIRMAN BONACA: Page 239 in the SER.

MS. FRANOVICH: Two dash 239?

CHAIRMAN BONACA: Two dash 39.

MS. FRANOVICH: Two dash 39, okay.

CHAIRMAN BONACA: It's the second to last paragraph.

MS. FRANOVICH: Okay. Let me do a little bit of reading here, but I'd like to go on and ask

Caudle --

CHAIRMAN BONACA: Well, you don't have to --

MS. FRANOVICH: Yes, I'll check on that.

CHAIRMAN BONACA: I don't want to interrupt the presentation right now, but I'd like to hear about that.

MR. JULIAN: Okay. Very good. Well, let me move forward. With the scoping inspection, the results that we got from our review were favorable. As I say, the applicants are becoming more and more conservative as time goes on, including more things in scope. Our report is published within 45 days, and I hope maybe you've seen a copy of it. They're available in the PDR, in the ADAMS system.

As an example of something we came across in the scoping inspection at Catawba and McGuire I guess probably more confusion over fire protection than anything else, what's in scope for Fire protection? That's a discussion that we have with the whole industry, and Duke is very active in discussing this with the Staff. They started off to use a scheme that they have at the Plant of fire protection equipment being identified as QA Condition 3. That's their designation for it. And they thought a very

good way to bring things into scope would be to just select off the drawings the things that are noted as new QA Condition 3. But when we looked at it, it was very confusing. There was definitions in the paperwork for Catawba and the paperwork for McGuire which seemed to not match up, and we couldn't understand what was in scope and what was not. And so we had to leave that issue for further review by NRR, and I'm sure it will be discussed a little bit later on today.

The simple version of the discussion between us, I think, is that Duke's contention is that of all the fire protection equipment in the Plant there is a subset that is regulatory important and they've agreed to take care of in a regulatory manner, and that's the group of equipment that protects safety-related equipment and will allow them to perform a safe shutdown. And their contention is that other fire protection equipment, yard hydrants, things of that nature, are there for insurance purposes and are included in the description in the FSAR merely for completeness. And the Staff has been contending that if it's described in the FSAR, then it's in regulatory space and it should be in scope. And so that's a discussion that we've had ongoing still.

MS. FRANOVICH: And we'll talk about that a little bit more later too.

MEMBER ROSEN: And that's open now?

MS. FRANOVICH: Well, there were six open items originally. We met with Duke October 1 and we resolved four of those six. So actually they're now confirmatory. But we still have an open item on whether or not jockey pumps should be within the scope of license renewal and fire suppression systems, particularly manual suppression systems in the turbine buildings. So those two are not yet resolved.

CHAIRMAN BONACA: We will hear about them later?

MS. FRANOVICH: Yes.

CHAIRMAN BONACA: Okay. The jockey pumps, particularly?

MS. FRANOVICH: Yes.

MR. JULIAN: Let me speak briefly then to the next portion of our inspection, and that's the Aging Management Programs Inspection. We recognize that this one is going to be larger and it's always two weeks. In this case, since we had a dual application, we did one week at McGuire and then one week at Catawba. And I have been fortunate that I have pretty good resources and experience staff, and

we can take a look at all the aging management programs rather than a sample. And in this inspection, this changes focus rather than scoping and screening. In this way, we're looking at the output of their whole process.

The net result of all this work should be aging management programs, which are going to take are of the plant in the future. The objective is to confirm that existing aging management programs are effective and to examine the Applicant's plans for enhancing certain existing programs and establishing new ones. The net output usually is that the things that have always been there, like in-service inspection, for example, boric acid corrosion prevention programs, things of that nature, chemistry programs, things that have been existing in the plant, are now brought into the license renewal space as aging management programs.

Some of the existing programs, which the Applicant has had all along, they may want to enhance and expand typical service water inspection. Nearly everybody has some sort of a repetitive program for going out and looking at the service water piping, which is bringing in raw water from the plant or wherever it is, and typically they will expand this a

little larger and make it an aging management program.

And then there are some things that are just new, and what we're getting at the stage we're at now is a promise from the Applicant that they're going to create before the existing license is up, and aging management program for something such as reactor vessel internal inspections that you mentioned. Alloy 600 is typically one now, that's a cracking issue in the industry. And to the extent to which we can look at those is to read the paper that they have there, which is more than is in the application. That's by design. They have more documentation at the Plant than they actually put on the docket. And discuss this with the engineers and understand their plans and agree that where they're headed their promise is going to be a good thing.

MEMBER LEITCH: Excuse me.

CHAIRMAN BONACA: Please go ahead.

MEMBER LEITCH: I had a couple of questions about this Aging Management Program Inspection. Has this already been done?

MR. JULIAN: Yes.

MEMBER LEITCH: It has been. Now, normally -- you indicated that normally there would be a two-week inspection.

MR. JULIAN: Right.

MEMBER LEITCH: In this case, because there were two plants, it was a one-week inspection at each plant.

MR. JULIAN: At each plant.

MEMBER LEITCH: I'm not sure I understand the rationale for that. I mean this is a very important leg of the program here. Did you look at -- and I guess the aging management programs are similar at the two plants. Is that what --

MR. JULIAN: Nearly identical, nearly identical. And that's the reason we think this is --

MEMBER LEITCH: Did you look at some programs at Catawba and some different programs at McGuire or did you -- how did you split up that work effort?

MR. JULIAN: The programs are nearly identical, the description in the application is nearly identical, and the actual program is very, very similar. I break up those aging management programs and dole them out to the inspectors, and each one has assigned group of aging management programs. And I asked them to look at the aging management program at both plants. If they had a Boric Acid Corrosion Program or whatever the site-specific name is, I asked

them to take a look at McGuire and take a look at the same thing at Catawba to a certain extent.

I was about to add the existing aging management program is one of the things we can do to gain faith that they're working and have been in the past is to look at past test results. We look at ISI reports and we look at containment integrated leak rate test results, and boric acid is one of my favorites. We look at the records from the last few outages to see what paper they generated as a record from the results of their walkdowns after the reactor is shut down or refueling outage. And so we covered some information at each plant, and I let my inspectors use their own judgment about how deep to go here or how deep to go there.

MEMBER LEITCH: I guess I'm getting the feeling, though, that, for example, boric acid, if you only have so much -- you had half the time then to devote at one particular plant to that inspection, so how did you --

MR. JULIAN: Yes, but I think we covered it. I think we covered it fairly well. I think we got through all the necessary material.

MS. FRANOVICH: And the Region II inspection team is a little different from the other

regions. They've had a lot of experience with the License Renewal Inspection Program, so they're very --

MR. JULIAN: One of my team members is a former senior resident at Catawba. He's familiar with it, he's worked at McGuire before also.

MS. FRANOVICH: And they're inspectors, and they're proficient at looking at these things at this point in time.

CHAIRMAN BONACA: I had a question about the issue of -- you mentioned before that you go in and you look at the programs and then you look at the enhancements to address license renewal. And in some cases, as you said, there isn't yet enough detail that is supposed to be generated. For example, I don't know, critical crack size and notice for the internals hasn't been defined yet.

MS. FRANOVICH: Right.

CHAIRMAN BONACA: There's a commitment to the solution of that. And there are many commitments of this nature as I went through the programs. And the question I'm having is the commitment is to develop all these criteria before the licensee gets into the license renewal area. How do you track these commitments? I mean I don't understand exactly. We have an application that already is not complete from

the perspective that there will be modifications to, for example, the one-time inspection that you're asking through the RAIs and so on and so forth. Then you have an SER that we're going to bless as we review it, and there is a lot of understandings in it that something has to be added.

MS. FRANOVICH: Right.

CHAIRMAN BONACA: So I don't understand how you're going to keep track of it.

MS. FRANOVICH: Let me try to address that.

CHAIRMAN BONACA: Where is it going to come through and --

MS. FRANOVICH: Let me try to address that.

CHAIRMAN BONACA: -- and when do we get involved with this, if ever?

MS. FRANOVICH: That's a very good question, and it's a unique challenge because we have to essentially plan to either do an inspection to verify that the commitments have been met or determine that, for example, today, we're really focusing on more of a risk- based inspection program that wouldn't go and just verify that commitments are met. So it's a unique challenge that we have to plan 20 years from

now to go and follow-up on these loose ends. Two years ago, I worked on an inspection program that would do that.

I'm not sure what the status of that program is now, but I know that the Staff has been developing an inspection program to do two things. One is to verify that commitments are met before the extended period of operation begins, and the other is to ensure that aging is adequately managed at the sites. And right now it's part of the maintenance rule inspection procedure. But I'm not sure what the current status of that is. I'm going to defer to PT Kuo to handle that.

MR. KUO: Yes. Let me just supplement what Rani just said. We've been working on what we call the post-renew licensing inspection procedures, and actually we signed a number 71003, and that's almost done. And we just recently a few weeks ago I was talking to our inspection branch managers to see how we can go about issuing this procedure. That's one aspect of the tracking. Another aspect of tracking is, of course, the FSAR. All the commitments are listed in the FSAR.

CHAIRMAN BONACA: But the FSAR update doesn't seem to include a very detailed list of all

these things that have to be enhanced. I mean if you're going through the SER, you understand, okay? But the question I'm having is 20 years from now is a long time, and somebody now has to go through the SER and understand what was in the mind of whoever wrote it to understand what needs to be completed and closed. And I think it's an inefficient process from that perspective. I mean why do we have to go for a life extension 20 years before the extension period when we have not developed all this criteria? I mean let me just say that maybe one could wait ten years and have all the criteria set already and put on paper so that the commitment will be there. I'm not challenging here what is happening on this application. I'm only asking what is the rationale to get a license renewal so much ahead of time when so much definition of the enhancements of the programs is not there.

MS. FRANOVICH: Yes. Let me try to address --

MR. KUO: Your question is right on, Dr. Bonaca, and that's the major aspect of this post-renewal inspection procedure, how to track all these commitments that the Applicant is making right now.

CHAIRMAN BONACA: And you'll inform us on

how you're going to do that?

MR. KUO: Yes, sir. As soon as we get it issued, we will come back to the Committee to report to you.

MEMBER ROSEN: Perhaps we could get some comfort also from the Applicant himself about this process, because, obviously, the Applicant does not want to cross into the license renewal period and miss a bunch of commitments.

CHAIRMAN BONACA: Right. Absolutely.

MEMBER ROSEN: Maybe Duke can address that when you --

MR. JULIAN: Okay.

MEMBER FORD: Could I ask one more question?

MR. JULIAN: Sure.

MEMBER FORD: It relates to what is being discussed. As I understand it, you've got the two weeks, one at McGuire, one at Catawba, looking at very similar aging management programs, the scopes, the procedures, et cetera. One thing that could be missing from that examination is this whole safety culture question as to how well they are performing. You have different staff at each plant. One staff might be highly motivated, I'm not saying that they

all aren't motivated, but assume that one is motivated and one is not, and yet they both are characterized in terms of their plans and procedures in the same way. Is that an issue?

MR. JULIAN: For our inspection purposes, we're looking at the aging management programs as they exist, and we're spending a good bit of time, I haven't got to that part yet, but out and about in the plant looking at the current status of the hardware today. During these inspections, I have my inspectors spend a good bit of time with Applicant representatives walking down physically in the plant the systems that they were assigned at the first inspection. I have a person who's doing safety injection, and he's out with hopefully either the system engineer or an operator-type person and goes out and physically looks at it today. That's one of the features of our inspection program is maybe we get some comfort about the future, how things are going to be in the future by how they apparently are today. And so, hopefully, if one plant is in a particularly bad condition and the other is not, you could recognize that difference.

Now, our people, of course, are focusing again, as I say, on the license renewal aspect and are

not pursuing the current performance day to day of the operators and the overall performance of the plant.

CHAIRMAN BONACA: That would be more an issue of moving the current licensing basis.

MR. JULIAN: Yes.

CHAIRMAN BONACA: I mean that would be an issue --

MS. FRANOVICH: Right.

MR. JULIAN: That's exactly like where we started with current licensing basis. Hopefully, the applicants are running their plant in a safe fashion today and we have a resident inspector program and region-based inspector program who are watching that day by day.

MS. FRANOVICH: Right. That's the revised oversight process that's managing the performance aspect of the current operation.

MR. JULIAN: But going out --

MEMBER ROSEN: That comes down to the question of what we do, Mario, with a plant, a hypothetical plant now, not the current one, but a hypothetical plant that was in a severely degraded status in the ROP and came in for license renewal. It hasn't happened.

CHAIRMAN BONACA: It hasn't happened yet.

MEMBER ROSEN: These plants, though, are not in that category. But it clearly would raise questions.

CHAIRMAN BONACA: I agree with you. And yet, you know, the current performance or culture of the plant is not going to tell us anything about a culture 20 years from now.

MS. FRANOVICH: That's right. That's right.

CHAIRMAN BONACA: So I think the only thing that we can say is that, certainly, I agree with you that if there was a significant problem today, I doubt that we would be reviewing this application, because we are receiving now a commitment from the Applicant that he will do all these things, and if you don't trust the Applicant, we have a problem with that. So I agree with you that there is an issue. But, again, I think we have to trust that the ROP will be effective 20 years from now when --

MEMBER ROSEN: And I agree with you that it's possible that one could get into the position that we would suggest to the Commission that they extend the license for an applicant who is currently in good shape, and then ten years from now that applicant may go into a degraded status in the ROP.

CHAIRMAN BONACA: Right.

MEMBER ROSEN: And in that case, we'd have to rely on the ROP, not the LRA, not the license renewal process, to catch it. The ROP is our safeguard.

MS. FRANOVICH: And, of course, the requirements of 10 CFR Part 50 --

CHAIRMAN BONACA: But I think, in part, I mean the license renewal rule, you know, the more we look at it it's quite effective in the sense that it's segregated all the issues that have to do with the current operation from the issue of aging and how you have to deal with them in case you go to license renewal. Of course, your performance is so awful that you can't run those plants 20 years from now, then you won't go to the license renewal. But in case you do, then there is a series of commitments that seems to take care of the equipment passive long-lived components the proper way, as far as we understand it today, the technology today. So that's an issue that is always coming up.

MR. JULIAN: Well, let's see, moving along, we started this discussion talking about how we're going to attract commitments down the line, and one of the things that we do take a look at and did

during this inspection is their future plans for how they are going to track commitments in the license renewal space. We saw that Duke had a very comprehensive program. It was one just like the one they built at Oconee that we took a hard look at back when we were there. They have a document they call a Specification 16 which has a very well laid out program for tracking commitments in the future and putting those commitments over into regular, established commitment tracking systems at the Plant. I believe that Duke has decided they can tell you the details, but they're going to have, I believe, a license renewal coordinator person at each of the plants, at McGuire and Catawba and Oconee. Most applicants have come to that conclusion now, and that's going to be a person in the future who's supposed to be thinking aging all the time and continually coaching and bringing up aging issues to the plant management, and we think that will help go a long way towards doing this.

CHAIRMAN BONACA: This will be part of what they call life cycle management, right? I mean you have a big plant and this fits into it or does the same thing? It's part of it.

MR. JULIAN: All right. The findings from

this inspection, the Aging Management Program Inspection at these plants were rather good. We have no big issues at all with them. I think the one that stuck out to me as I was reading through the report again last night to refresh my memory was again fire protection. That's something I looked at. And when we started looking around at all the surveillances that they were doing in the fire protection area, they identified in their review, when they were getting ready, I think, for our inspections, that they had missed some in the past.

There was a couple of surveillances at McGuire that had fallen through the crack and weren't being done. They were of minor safety significance, going out and visually inspecting fire barriers to make sure that they're still in good condition. And when we started asking the same questions at Catawba, I believe they identified again that they had missed some surveillances in the sense that it appeared that the work was getting done but they were not properly documenting the work, they weren't following the procedure. These were of minor significance and were not pursued for the purposes of enforcement at all.

And we observed that the overall condition, we thought, Of the power plants was very

good.

MEMBER POWERS: Let me ask you a question.

MR. JULIAN: Yes.

MEMBER POWERS: They were missing surveillances or not documenting that they had done surveillances in the fire protection area. Was that characteristic of surveillances done for other aspects of plant operation?

MR. JULIAN: I did not pursue that. I don't know. I haven't -- for it to get done and I get done that week but I got the --

MEMBER POWERS: Maybe you should have spent two weeks.

MR. JULIAN: Maybe we should have. Maybe we should have. Maybe we should have. We communicated to the resident inspector, so we expect that they will be looking into that down the road.

MEMBER POWERS: What I'm wondering is, is there something peculiar about the fire protection culture at these plants or is it just a general culture that we miss surveillances or fail to document surveillances?

MR. JULIAN: In the case of McGuire, the situation, as described to us, was several years back, three or four years back, they took a large

surveillance and were going to break it down into smaller ones and establish what they call model work orders for doing this thing over and over and over every 18 months. And some way they missed a couple of facets of the procedure. That was the explanation that they put on their documentation, and they wrote that up in their corrective action system.

In the case of Catawba, it was a little different in that mechanical people were doing this routine, surveillance, and going out and looking at the equipment, but they, for whatever reason, had decided they'd done long enough and weren't following the proper format to document their results. They log in the log, "Yes, we did it successfully," but they did not fill out the proper procedures.

MS. FRANOVICH: The extent to which the inspectors would determine whether or not that's indicative of how they manage their overall surveillance tech spec or selected licensing commitments surveillance program is really beyond the scope of the License Renewal Inspection Program objective. So we really don't have an answer for you on that, but Caudle did indicate that he shared that with the resident inspectors, so, presumably, they've got the information that they'll follow-up on and see

how extensive that might be. Of course, the ROP would -- it's in process now. It would probably reveal those kinds of problems.

MEMBER POWERS: Well, and it seems to me that if I found people breaking systems down into smaller unit works and missing some things, failing to document inspections and what not, I would be very concerned about the proposed aging management programs here, which rely heavily on inspections and surveillances.

MS. FRANOVICH: And documented findings.

MR. JULIAN: And we did see that this was put into a corrective action system, and I have faith that they will pursue that and get to the bottom of it. The fire protection area, you mentioned is it susceptible, it probably is because there are so many, many, many things that they do for going out and looking at fire protection equipment. And so it is a little bit more prone to losing something in the crack. It seems to me that's fire protection. I think --

MEMBER POWERS: Especially if they're having not the fire protection people doing it but general maintenance people doing it. I find that very distressing.

MR. JULIAN: That is typical at most of the plants now in that fire protection surveillance is going out and visually inspecting things that are typically done by plants now. So that concludes what I had to say. Are there any questions?

MS. FRANOVICH: Did you want to say anything about the optional final inspection and what would drive the NRC to perform that final one?

MR. JULIAN: We wrote into our program an optional third inspection, and it's at the discretion, decision of the Regional Administrator, Luis Reyes. He has not yet reached a conclusion on the Duke, the Applicant, whether or not we want to do a third inspection. We just completed one a few weeks back at VEPCO. We did not do one at Turkey Point, we did one at Hatch. And the judgment that is made by the Regional Administrator I think is based on the number of issues that we find in our inspections that are open that we feel need following up, things that were not right in the application, inaccuracies and any particularly interesting features that we see out in the plant that we think need prompt corrective action.

We did not have any large number of issues at the Duke plants that would require it, but we have not yet made that final decision yet whether or not

we're going to do it. We also could use that inspection as a vehicle if we're requested by NRR to go follow-up on particular aspects of their review.

MEMBER FORD: You mentioned that you did a final -- optional final inspection of VEPCO. What was the turning -- as you read through this application in the SER, the history of a lot of RAIs and open items which have been, some of them, resolved. But by your description just now as to the kind of gut feeling as to what goes into the decision-making as to whether there's going to be a final inspection, you'd say that, yes, there should be a final inspection since there are some milestones that haven't been determined for commitments, et cetera. So you say you don't think we're going to have a final inspection. What is the thinking behind that?

MR. JULIAN: Well, our --

MEMBER FORD: -- for this Station?

MR. JULIAN: For our inspection program, we wrote into our program that we're looking primarily at open items from our inspections, from the scoping and screening inspection and from the Aging Management Program Inspection. We would do some things if requested for confirmation by NRR. After all is said and done, usually there comes down to be very few of

those from NRR.

MS. FRANOVICH: Right. The SER open items are really for the Staff and headquarters to resolve. So when Caudle's management decides whether he needs to go back to do the optional final inspection, it has more to do with what items did the inspectors identify that have not yet been resolved, unresolved items from the inspection reports, that kind of thing.

MR. JULIAN: One of our --

MEMBER FORD: Okay.

MR. JULIAN: -- heavy interests is in just the issue you all have described about how is the applicant going to track issues down the road, and in the case of VEPCO they were early in the process of doing that. When we went back last week or so. We found that they had advanced significantly. When we went to Duke, they had a leg up on that because they had already established that process at Oconee and had two years to work out a scheme, and so they were well down the road. But, again, that decision has not been made, and we have time to do that.

MS. FRANOVICH: Thank you, Caudle.

MEMBER LEITCH: Just one further question. I'm coming away with the impression that in both the scoping and screening inspection and the Aging

Management Program inspection a very high fraction of the work is a paperwork review, and I guess I'm still trying to understand was there any conclusion drawn as to the general material condition of these plants? That is, did you go and look at things such as, for example, cable tray for cable degradation --

MR. JULIAN: Yes.

MEMBER LEITCH: -- or something like that? Or is that kind of an inspection primarily left to the residents and the current licensing basis?

MR. JULIAN: No. We try to perform a mixture of that. I didn't touch that feature, but it's probably important that I mention it. At each site that we go to for a license renewal inspection, we've managed to find a time when they're in an outage and sent an inspector up for a walk-about inside containment for a day. We did that at one of the Catawba units and one of the McGuire units and documented the results in our report. They have nothing bad to say about what they saw inside the containment at the Duke plants. The overall condition of the Plant we thought was good, and that's what we wrote in our report. I was not at the last meeting that you all had, but I understand that was a topic of discussion about why we would say that. We do try to

reach a conclusion in our inspection reports, and we thought the overall condition of the Duke plants was a good one.

We found some corrosion on external piping in the service water, the in-take structure pit where there has been a bad condition down there that existed for a number of years where a seal leak-off from a pump had been just spraying all over the outside of the piping. That was, I think, the major issue that we had at Catawba and McGuire. We did mention in our report that has Catawba has a continuing struggle with plugging up of raw water systems coming in from their lake because their lake water is susceptible to causing fouling inside their piping. We saw that they had a really good program, a good start on a program to go clean all those pipes out. They've already done the safety-related one, and they're working on programs to clean out the others. They have some internal inspections, some photographs that we looked at, and we talked to the engineers who are in charge of that, and we have confidence that they're on top of that issue.

So we do quite a bit of looking about, and we go during the outage to get to areas that are inaccessible inside the containment and other areas

that might be high radiation while they're running. And then all my inspectors fan out across the plant and walk down their particular systems, and we write about it in our inspection reports. We typically don't write good stuff. We typically write if we see something bad, because otherwise the report could get very, very thick. And so it's not spread throughout the report, but it's typically in one paragraph in the back, one section in the back. So it's a mixture of looking at paper, which we must do, and trying as much as we can to also look at hardware in the plant to get a feel for the condition of the plant today.

MEMBER LEITCH: Yes. One of the things that I'm grappling with is just how significant those material condition issues are. When you look at the plant today, what does that really say about license renewal 20 years hence? You know, it's a little difficult to know just how focused these inspections should be on material condition. In our gut, we kind of say if it's good today, it may or may not be good tomorrow. If it's bad today --

MEMBER ROSEN: It's unlikely to be great tomorrow. I think that's where I come down. That's a very good question.

MEMBER LEITCH: But the linkage is not

entirely clear when we're dealing so far into the future.

MS. FRANOVICH: Let me comment.

MR. JULIAN: Let me say, we struggled with those same issues when we were writing our inspection procedures and starting this off, but we thought what we lined out is the best we could think of to do today. And doing what we're doing is better than not doing anything at all.

MEMBER ROSEN: Doing what you're doing is very encouraging, and I think I'd like to continue to use your presence here, pardon me, to get a little better feel.

MR. JULIAN: Sure.

MEMBER ROSEN: It's very helpful to me to listen to you about what you've done. In the area of fire protection, and we're going to discuss, I understand later, the scope issues, and that's important, but what about the condition of the fire protection system at these plants? Did your inspectors go out and take a hard look at that?

MR. JULIAN: I did. That was my assigned system to do fire protection, and I thought that the equipment was in good condition, the fire protection that usually observed from the outside. That's

another limitation is that we can't out wrenches and tear things apart. They won't let us do that. But I did look at also at the surveillances, the results of tests that they had done. Overall, I think they're pretty good. They have one ongoing issue at Catawba where they have an underground rising post valve that's twisted off or something, and they can't perform a flow test to test redundancy of water capacity coming up from the river. But that's an operational type thing that we see at all plants. From time to time, equipment just, with time, degrades. That is aging, and they need to be working on things. When they successfully complete surveillances, write a work request, tear it apart at the proper time and refurbish it.

MEMBER ROSEN: But you get a sense at Catawba and McGuire that the fire protection equipment -- pumps, piping, sprinkler heads, hose stations -- are in --

MR. JULIAN: Good condition.

MEMBER ROSEN: -- what kind of condition?

MR. JULIAN: Good condition. They're in good condition. The biggest struggle, I think, that they'll have at Catawba is the one that I mentioned earlier with continuing to worry about plugging or

piping. They do flushes, of course. Part of our surveillances are to flow test systems periodically and see that they have sufficient flow, and I think they are in good condition.

MEMBER ROSEN: Good. Thank you.

MS. FRANOVICH: Shall we proceed? Thank you very much, Caudle, appreciate it.

MR. JULIAN: You're welcome.

MS. FRANOVICH: We need to make up for some lost time or Greg will only have five minutes to present. The next slide just reveals the format and organization of the SER, which is consistent with that of previous SERs. And just briefly wanted to mention that, again, we met with Duke on October 1 to talk about five scoping open items and September 17 through the 19 to talk about the other open items from the SER. Out of those meetings, we were able to resolve or make confirmatory the bulk of the RAI -- or open items. We still have 13 that are not resolved yet.

We had to add one open item that's not in the SER because it came -- it revealed itself after the SER was issued through Part 50, a reactor vessel coupon surveillance test result that indicated that their TLAAs from McGuire Unit 1, I believe, would need to be reevaluated. So we've given that an open item

number 4.2-1 for tracking purposes only. We sent a letter to Duke asking them to submit their reevaluated TLAAs and we're waiting for that information. Thirty of the previously identified open items are now confirmatory, two are resolved, and on October 2, Duke provided some responses, interim responses to a number of the confirmatory items but that letter is still under Staff review, so those issues are still characterized as confirmatory in today's presentation.

MEMBER LEITCH: I'm having a little trouble with the scorekeeping here, and I guess some of our questioning later today may deal with some of these open SERs or open items. Do you have a list or some way to help us scorekeep as to which 13 you consider still to be open?

MS. FRANOVICH: Sure. What we're going to do is when we talk about the areas that they were identified in, the sections of the SER, we're going to list those that are still open and those that are confirmatory.

MEMBER LEITCH: Okay. That will be helpful. Okay. Thank you.

MS. FRANOVICH: Sure.

MEMBER ROSEN: I guess I can't let it go by on this one. I know you added 4.2-1. Clearly,

it's a reactor vessel issue?

MS. FRANOVICH: Correct.

MEMBER ROSEN: We need to hear a whole lot more about that --

MS. FRANOVICH: Yes.

MEMBER ROSEN: -- before we leave today.

MS. FRANOVICH: Sure. When we discuss Section 4 -- or Chapter 4 of the SER, which is the TLAAs, my lead reviewer will be up here talking to you about that open item.

MEMBER ROSEN: Okay. Good.

MS. FRANOVICH: Yes. And final letter from Duke, we expect at this month to resolve, hopefully, remaining open items. This slide will help with that question on where are there still open items, where are there still confirmatory items. This is just a quick rundown of the sections that these are in.

With that, I'd like to take a break from my presentation and invite Greg Robison from Duke to come up and present his.

MEMBER LEITCH: Just before we move on, I think Dr. Bonaca has surfaced an important issue. I just would like to just add my comments to it, and that is this issue not only of the licensee continuing

to develop the programs necessary to support license renewal in this period of the current license, but I think we're also building up a significant bow wave of inspection activities for the NRC down the road here, perhaps 15, 20 years out into the future.

So I mean I just wanted to point out, I guess, what is perhaps obvious to everyone, but there is a significant workload of inspection activities coming on down the line. And to the extent that that's all deferred until the last minute, it's going to be very difficult to deal with. So, obviously, in some fashion, those inspection activities have to be undertaken as soon as possible so that we don't have too big a peak in the workload as we approach the license renewal period of these plants.

CHAIRMAN BONACA: The other thing that would be added to that, by the way, is some of these one-time inspections may not be turning out to the expectation that there is no problem there. And that will be followed by further notification to the problems, the commitments to carry out the inspection, potentially. So you're going to have -- you're absolutely right, there's going to be another war coming and we will have to really understand how the planning is going to be.

MR. JULIAN: And we are building a procedure. As Dr. Kuo mentioned, that's 71003, and there's been discussion amongst the Staff about where do we put it, but everyone agrees that the substance is going to be in a document that has a list for each plant of what items need inspection and when. That will be ours to pursue on down the road.

MR. KUO: And Dr. Leitch, I just wanted to add that you're exactly correct. It's a subject of extensive discussion among the Staff and the region as to how many FTEs is going to be required to do this inspection. So as part of that discussion, some options were discussed. Now, for instance, just an example, whether the post-renewal licensing inspection should be part of the visions of regular inspection or it should be an independent inspection. So these are being discussed -- has been discussed and that's the reason that we are still working on it and trying to resolve these type of issues. It's been definitely discussed already.

MEMBER LEITCH: Good. Good. Thank you.

MS. FRANOVICH: Okay. And with that, Greg, do you want to come up and present for Duke?

CHAIRMAN BONACA: We are running about 20 minutes late, and so what I would like to do is just

for you to proceed until you see a good place for a break between now and 10:30 and then we'll take a break at that time.

MR. ROBISON: All right.

CHAIRMAN BONACA: You let me know when you get to that point.

MR. ROBISON: Okay? All right. Good morning. My name is Greg Robison. I'm the Project Manager for License Renewal for Duke Energy, and it's a pleasure to be here with you this morning.

What I'm going to do is take a few minutes and just overview various aspects of the application. I think we will hit some of the topics where questions have already been raised this morning. Perhaps we can explore those a little further. And with that, we'll go on.

The second slide in your package, I want to acknowledge my team is with me today. Up here with me in front is Bob Gill. He's our licensing point person and really handles the bulk of the load at the end of the project. As you can see from the slide, Paul Colaianni, our electrical person, handles the electrical area. Paul is here with us today. And should questions come up through the course of the day, I want to make sure that our technical folks are

available to also contribute. Mary Hazeltine did our reactor coolant system work. Mary is here with us today. Debbie Keiser's our structural person, and Debbie's with us. Rounette Nader is one of our two mechanical folks and Rounette is here along with Mike Semmler, who also is a mechanical person. And also on this slide I would ask you to note the significant industry participation that these folks have had over the last ten years. Collectively, on this team, there's over 60 years of license renewal experience. So this is a very experienced team. We brought the Oconee team forward and we're glad to keep it together and work on McGuire and Catawba.

I won't spend much time on the next two. I brought some diagramatics. This is a map that you can perhaps read it. The McGuire and Catawba plants are north and south. Bob, could you point to those on the map? McGuire and Catawba are north and south of Charlotte; Oconee is approximately 180 miles to the west. So what you're looking at is a map of the Duke system, and I wanted you to have a perspective on where our plants are located.

And one of the reasons when Caudle mentioned that we could have a meeting in Charlotte and encompass McGuire and Catawba, each of the plants

are just a 30-minute drive either way from the downtown area, so it's easy to have a central team and then migrate to the site even that morning if we needed to.

The next picture is some photographs of the Plant just to give us some visual familiarity with the Plant here this morning. McGuire up on Lake Norman and Catawba down on Lake Wiley, south of Charlotte. Plant details, Rani has covered a good bit of this. Again, the details are there in your package, and I won't belabor them, but I thought it would be interesting to show you some statistics on the plants themselves.

The meat of our presentation is to review the high points of our application. I thought I would take a few minutes and give you a little bit of background on the application. We really -- we believe we're the first SRP plants to go through license renewal, and this will begin to put a certain different spin on things because of the structure of the materials, the standardization that went into the Plant design in the beginning. We're the first ice condenser containment plants to pursue renewal, we've done steam generator replacement at three of the four units, and also we're the first second renewal

application and the second two-site applicant with a couple of new twists and wrinkles.

MEMBER ROSEN: Greg, you said three of the four have had their steam generators replaced. The fourth is scheduled?

MR. ROBISON: No, sir, not yet. Catawba Unit 2 has not been scheduled because the materials in Catawba Unit 2 are a little different breed than McGuire 1 and 2 and Catawba 1. We're trending the plugging rate, but we're not at a point where we can foresee replacement yet. Again, for 40 additional years of operation, you can anticipate the generators will need replacement, but right now we can't anticipate when that will be. But we do have a -- as part of our Aging Management Program, the Steam Generator Surveillance Program, which would track the two plugging rates.

MEMBER ROSEN: So when did Catawba go into service?

MR. ROBISON: I'm sorry.

MEMBER ROSEN: Catawba 2 went into service what year?

MR. ROBISON: Nineteen eighty-six.

MEMBER ROSEN: So it's 16 years and it's not showing signs of needing replacement?

MR. ROBISON: No, sir, not yet.

MEMBER ROSEN: What's special about it?

MR. ROBISON: I think the -- Mary, do you know any particulars that you could add on Catawba Unit 2 steam generator materials?

MS. HAZELTINE: I believe it has to do with the Alloy 600 tubes. You'll also note that Oconee, which is a much older Plant, is just now going to be replaced. So if you put it into that perspective, you look at how much longer the Oconee generators lasted than the generators at McGuire and Catawba.

MEMBER ROSEN: You said the treatment of the Alloy 600.

MS. HAZELTINE: I believe that it was a heat treatment process.

MEMBER POWERS: The plants with annealed materials are much more corroded than those that were heat treated in situ.

MEMBER FORD: But the replacement generators are 690?

MR. ROBISON: Yes.

MEMBER POWERS: On the Catawba 2 using the alternate repair criteria?

MR. ROBISON: I do not know. I do not

know that detail. Let's see, again, some more application background. The NRC approved our exemption request. The reason for the exemption request and the fact that we have four sister units, we have McGuire Unit 1 that's over 20 years old, but we felt like with the collective operating experience, the fact they were built at the same time and have exhibited very similar behavior, that we could use that to be confident in a pursuing a license renewal. And with McGuire Unit 1 already having reached 20 years, we asked for an exemption for McGuire Unit 2, Catawba 1 and Catawba 2, and that was the basis of the exemption request.

What that causes on the next bullet is an interesting twist when it comes to finalizing the license renewal date, because as it says here, it's 20 years from the expiration of the current license or 40 years from the date of the issuance, which may mean, depending on when the license is issued, that the Catawba licenses may be somewhat less than 60 years, two or three years less than 60 years if you do the math. And there's some cute phrases that you can say about the 20 years or 40 years from the point of renewal.

We did ask, however, that the safety

evaluation review and the environmental reviews cover the 60-year time period. There was no reason to ask for 57 years to be thought of or 58 years to be thought of. If you're going to be think the technical thoughts, think for 60 years, and that was our request.

MEMBER LEITCH: But the exemption request does not impact the criteria 40 years from the date issuance of the renewed operating license; is that correct? In other words, we're still dealing with 40 years from the issuance of the renewed operating license.

MR. ROBISON: Yes. We're still dealing with 40 years from the issue date of the license, yes.

Another little bit of application background that may also answer some of the questions that Dr. Bonaca was asking, we began application preparation in January of 2000. It was May of 2000 when the Oconee application was approved. So we began this project while we were still finishing Oconee. So we took our team, our expertise and our procedures and forms and we moved on to begin McGuire and Catawba. You see here that in August of 2000 the draft version of the NRC guidance documents and industry guidance documents were available to us. In 2001, July, the

final documents were available. So we worked with draft information and also with our Oconee formats. so when we produced an application, it was very much berthed out of the style we used on Oconee. Whereas the reviewers were more trained to the guidance documents from mid-2001 and I believe perhaps their familiarity with the latest and greatest techniques and guidance documents and here we came with something that was perhaps a little bit old school. That threw the reviewers off some.

MEMBER LEITCH: I don't really want to belabor this point, but it still is puzzling to me why you would go for license renewal with the possible sacrifice of two to three years of operation at the end of this period? It almost seems to me like we would be doing you a favor were we to delay approving this for three years.

MR. ROBISON: Perhaps, but --

MEMBER LEITCH: I just don't understand that rationale.

MR. ROBISON: Perhaps, and I won't ask for that. Part of the rationale, the easy part of the rationale, was we wanted to keep the team together. We looked at what it would cost Duke in time and materials and labor to reconstitute a team five years

from now to do Catawba, and it didn't make any sense to us to try to recreate a team when in fact if we get to year 57 on Catawba, we can come in and renew the license again if we're in good shape and things are still well with us. So that with the possibility of another renewal many years out in the future, we're really not sacrificing those three years, it's just going to cause us to take additional action just a smidgeon earlier.

MEMBER ROSEN: You mean renew again in 57 years for three years?

MR. ROBISON: No, renew for additional 20 years beyond that.

MEMBER POWERS: These plants are much better than those in south Texas.

(Laughter.)

MR. ROBISON: The --

MEMBER ROSEN: This could go on till your Plant rivals the pyramids --

MR. ROBISON: Yes.

MEMBER ROSEN: -- in longevity, with your model.

MEMBER POWERS: I have a great deal of confidence in the ability of neutrons to embrittle steel. That will bring it to an end.

CHAIRMAN BONACA: It takes time but we'll get there.

MR. ROBISON: Moving on through some of the highlights of the application, the Integrated Plan Assessment topics that are housed in the application are the scoping and screening that we've begun to talk about today and also the aging management reviews. The Integrated Plan Assessment we performed along discipline lines, and that's why when I introduced the team to you this morning, they're important because along with the individuals go their responsibilities for a very large team of mechanical people, operations, maintenance, system engineering that they were able to reach into the Plant and tap. So they really were the managers of each of these areas to pull the information together that you have in front of you in the application.

Scoping and screening, several slides. This slide in particular gives you a feel for the structure of the application itself. Scoping and screening methodology again, it always helps to define your procedures. We did provide that in the Section 2.1 of the application. We gave broad Plant-level scoping results for all of the disciplines, and we considered RCS a separate area. The Plant-level

scoping results in Section 2.2, and then you can see how the results fed out into Section 2.3, 2.4 and 2.5.

And I will point out in the electrical area that we used a bounding approach. We've had that discussion in a number of meetings in industry, perhaps you've heard of that. The bounding approach allows us to really take a very broad view of electrical components, not go inside of cable trays and pick out which cable, perhaps, is a safety-related cable, but look at the area, look how aging could impact the electrical hardware in that area and make judgments that way. So it's more of a superset or a broader sweeping type approach but it's conservative and it served us.

The scoping and screening results continue. The system descriptions are generically applicable to McGuire and Catawba unless otherwise stated. Again, four sister units, things are very, very similar at the functional level. It's the physical layout level where you begin to get differences in plants, and that's just a function of the piping people and the equipment people and how they laid the plants out. But, certainly, at the functional level, there's extreme overlap of the two designs.

The electrical and instrumentation descriptions are done on a component basis. Again, when you're doing a superset you don't need to go in and describe each electrical system if all electrical systems are going to be included -- safety, non-safety. Again, we're taking component views in areas or zones, looking for aging in those areas or zones and making sure that we can manage the aging of the hardware. And all discipline screening results are provided in the Chapter 3 tables. We used, as I'll show you in just a moment, the six-column table format for communication purposes. So that's a high-level overview of scoping and screening.

Being an engineer, I have to give you an equation. The aging management review follows an equation that we were able to understand many, many years ago, that if we took a component and its aging effects and we took that combination and understood how programmatically to manage it, if that program happened to exist and we could go into operating experience and see that it was doing a good job, all of that collectively then gave us reasonable assurance that we could carry that exercise forward.

MEMBER POWERS: Why is it an additive and not a multiplicative equation?

MR. ROBISON: I think someone raised that issue in the past, and I had -- I'm not sure I have a good answer for that. Perhaps it is multiplicative.

MEMBER POWERS: So you show us one equation and it's wrong.

(Laughter.)

MEMBER POWERS: I couldn't resist.

MR. ROBISON: He made that comment to me last time I showed this equation. Thank you. So what this allowed us to do -- it's a very important memory trigger for us, because we would begin to talk to the Plant people and they would say, "We have this particular aspect." We could ask them, "Are we talking about definition of the component and its functions? Are we talking about the environment and materials which would lead us to an aging effect?" What is it we are talking about, and help us understand where we are so we could avoid thinking we had solved a problem but somehow not being able to communicate. Again, we did a lot of work pulling Plant records together, pulling operating experience together, and we wanted to make sure we got it correctly captured.

I just mentioned aging effects determinations. We found early on that it was very

difficult to go to your metallurgist every single time you wanted corrosion defined. So what we did was we looked at the component materials, what is your power plant built of? How many different kinds of materials really are in a power plant? How many different kind of environments are there in a power plant? If you take those combinations, how many different aging effects are we talking about here? So rather than taking a Christian name of a component, working through its material and trying to say for this Christian name of the component, here's how it ages, we said, if they're all carbon steel and they're all in this environment, won't they exhibit similar behavior? Let's go and think about the broader sweeping behavior of things first so we don't lose our acclamation and then come back and apply operating experience. And what you see here is we ultimately documented that in a series of tools that we have had EPRI publish, and those tools have allowed us to sort of standardize our perspective so we don't get confused on definitions of terms. This is a very valuable piece developed during the Oconee days, and we've continued to use it on McGuire and Catawba.

CHAIRMAN BONACA: That's somewhat the process that the GALL report uses too.

MR. ROBISON: It is.

CHAIRMAN BONACA: To what extent do you make use of GALL?

MR. ROBISON: We're not able to use GALL at all. We did compare ourselves to it in the end, but we did not have it available to us in the beginning to use. And, again, we had our Oconee experience and also our tools, as we call them, that we used and were able to consistently apply those. But there's very few, and I can't think of any differences with GALL that our tools would bring up.

CHAIRMAN BONACA: Okay.

MEMBER FORD: Could I ask something that's been concerning me for a little while? Oconee got their license from you all just before the CRDM housing situation arose. And you assure there aren't aging effects determination, but you're very much dependent on industry tools coming out of EPRI, and I guess you're forced to do that. You can't do your independent research to come up with a proactive aging management program for your specific Plant, I'm assuming.

MR. ROBISON: The Oconee --

MEMBER FORD: So you are at risk, aren't you?

MR. ROBISON: You are somewhat at risk for unique materials and things that -- how does the phrase go, you can't know the unknown. And so as things are revealed to us and we become aware of them, we have to make sure we have an opportunity to put that back into our plant experience.

Turns out on Oconee we actually had a CRDM housing program that we took through license renewal. What has occurred since we relicensed Oconee is that program has had to be returned to incorporate the new knowledge that's come out of the Oconee experiences and other experiences in industry.

MEMBER FORD: Okay. But you have no way of -- it's an obvious statement -- you have no way of knowing what's going to happen in the future if you had imperfect tools.

MR. ROBISON: That's correct.

MEMBER FORD: And you're depending on EPRI or some other organizations to perfect those tools.

MR. ROBISON: Or your own operating experience to contribute to your awareness of what may be out there.

MEMBER FORD: Well, that's what worries me since we're talking about 20 years hence when this thing goes into operation. You're essentially saying,

although you don't define it, that you will be relying on living developments of these tools as the industry comes up with better predictive technologies so you incorporate them. But they are not in your current license renewal plan, because they don't exist.

MR. ROBISON: They don't exist, we don't know them. Perhaps --

MEMBER FORD: But you are committing to use it -- obviously, you're going to commit to using these operator tools as they become available over the next few years.

MR. ROBISON: And in fact, today, in the Part 50 world today, we're faced with the same challenge. As new information comes available to us and we rely on -- we, the industry collective, rely on things like the generic letter process or identifications via perhaps our INPO representatives would provide us with information. So the infrastructure's in place to provide that information, we just have to be wise enough to go look. I think I'll move on.

Here's the six-column table, again, communication style that we used. Very effective for us to make sure we've communicated things and make sure that we can do a QC and it makes sense. It

allows some easy bookkeeping. So Chapter 3 of our application is full of these tables.

Program summaries. Some more statistics. There are 54 total programs -- these are application numbers -- 54 total programs are credited for the safety work. Fifty-one of those are aging management programs, 34 of them exist in the Plant today. Nine of the programs are new programs for renewal, eight of them are one-time inspections, and one-time inspections involve things where we don't believe aging is occurring but we want to go at some point in time and validate that feeling or conclusion or assumption and make sure that before we enter the extended period that we can indeed say that. Three of the programs deal with time-limited aging analyses.

Commonality of the programs, 48 of the 54 programs are common to both sites, and Caudle, I believe, mentioned some of that in his discussions earlier on the inspection. And 31 of the 54 programs are equivalent to the Oconee programs that we've already processed through license renewal with the NRC Staff.

MEMBER POWERS: You indicate that eight of these programs involve one-time inspections and the balance of them involve multi-time inspections?

MR. ROBISON: Yes.

MEMBER POWERS: And surveillances? And what fraction of those surveillances will be missed and what fraction will be reported or documented?

MR. ROBISON: It's my intention that we don't miss any more surveillances. It does bring up an interesting point, Dr. Powers. We have taken the opportunity in license renewal when we kicked over the rock and found something that didn't look so great to say let's fix this and let's also use this as an opportunity to mature. Let's ask ourselves how we got here. Many of our programs at the Plant grew up in their own individual little areas, and they've never been aggregated like we've done for renewal, where we have an entire UFSAR chapter, new Chapter 18, where we put this information. Many of these programs existed in a notebook on someone's shelf with a line item commitment in a letter. Well, we've pulled all that together, made it much more visible so that as we go forward we hope we can drive maturity into the way we manage the aging. So I'm sorry that we missed the surveillances, but on the other hand if we can use it as an opportunity to learn and grow, which we certainly are at Duke --

CHAIRMAN BONACA: So you enter this

finding in your corrective action program?

MR. ROBISON: Yes, sir. It goes into the corrective action program. We make sure we understand, make sure that it's not broader than just the few surveillances and the documentation --

CHAIRMAN BONACA: I raised an issue before about the duct work that has been referenced or quoted in the SER that was on the drawing but is not in the Plant. Has that issue been entered in the corrective action program?

MR. ROBISON: Do you know?

MR. GILL: Doctor, I think the drawing was an electronic drawing so that it had to use the symbols of the drawing. What we did was we went back to the technical manual for that. That was the fan and the dampers associated with bypass flow and the like. And it was an RAI and we did send a copy of that drawing to the Staff so they could see that physically it's all one unit. There is no duct work even though the flow diagram indicates duct work. The dampers and fan are all one compact unit made by the manufacturer. It sits on the divider barrier between the upper and lower containment. So what we found out was the drawing was basically drawn by the tools they had and they have to have dampers and they have to

have fans and they had to connect them, but really it's all one unit if you actually physically look at. So we were able to, I think, resolve that issue effectively by showing a drawing from a tech manual.

CHAIRMAN BONACA: And the issue is resolved.

MR. ROBISON: So the issue would be resolved for that, yes.

MS. FRANOVICH: I also looked at the SER, Dr. Bonaca, and it's just as what Bob has explained. The flow diagrams are useful for indicating flow in the -- where components fall in the flow path, but they're misleading sometimes in the actual configuration of the as-built system. So when Duke responded that these components are really bolted together, I think it was the fan and the damper housing, there's no ducting in between them, that was a satisfactory response to the RAI and the issue was resolved.

MR. GILL: This was heating, ventilating and air conditioning flow diagram which is typically used to balance flows and that kind of thing. Is that what we're talking about?

MS. FRANOVICH: Not really. I think the VX system, which is the hydrogen skimmer and

containment air return system, is an ESF that is not an HVAC system. It's a ventilation system but it's for the combustible gas control. It just draws the hydrogen out of the compartments of the containment and eliminates the hydrogen to the extent possible by the system.

MR. GILL: It helps to keep the pressure balanced between upper and lower part of the containment within the ice condenser. I don't believe we have a copy of that response, Rani. Maybe we can --

MS. FRANOVICH: It's right there in the SER. I opened it to the page.

MR. GILL: I mean the picture.

MS. FRANOVICH: No.

MR. GILL: The actual --

MS. FRANOVICH: No.

MR. GILL: That would just show a demonstration.

MS. FRANOVICH: We can probably get it.

MR. GILL: You can do that in a break or whatever.

MS. FRANOVICH: Right.

MR. ROBISON: I will add that one of the things we did do was go beyond the P&IDs when we were

identifying hardware. If it was a very straightforward piping system where a P&ID could easily show the hardware, we used predominantly the P&IDs. But when we got into HVAC or other areas where the drawings may not be good clear descriptors, we did pull the tech manuals out, opening up the layout, physical layout drawings themselves to make sure we didn't miss any components. So it wasn't like there was a high-level scoping review by my team and then they stopped. We actually wrote specifications on each mechanical system, and I believe between the two plants it was well over 100 systems, collectively, that we dug into the details of to make sure that we had things complete and comprehensive.

MEMBER ROSEN: You're answering part of the question that I asked earlier, and it's helpful, but did you do, for instance, I&C loops? Did you do that with I&C loop diagrams?

MR. ROBISON: Actually, what we did for I&C was we took a look at the specification that install physical taps off the mechanical systems, what is the material made of, and we included the I&C to the materials with the mechanical system. So we would add stainless steel tubing, for example.

MEMBER ROSEN: But when you looked at the

I&C loop diagrams, did you see components on them that are not really visible on the other diagrams?

MR. ROBISON: We found some instrumentation associated with containment, yes, that was not on the mechanical drawing that we found out the containment pressures and whatnot, that the instrument system is there to function to serve. And we found that information off the I&C type drawings, yes.

MEMBER ROSEN: Is that all you're going to say about this Specification 16 we heard about?

MR. ROBISON: No. I have a slide and some more discussion on that in just a moment.

MEMBER ROSEN: I'll wait.

MR. ROBISON: The last area, the other area to highlight would be the time-limited aging analysis, and I just have just a moment. I know you know the definitions of the time-limited aging analyses. I will point out our results here for -- we did try to follow the standard review plan for license renewal as far as presenting the information. The reactor vessel, of course, has several time-limited aging analysis. We did resolve those by redoing the analysis or assuring that the analysis is up to date.

In the metal fatigue area, the EQ area and

one other area, we resolved the time-limited aging analysis by program. For example, in the metal fatigue area, we've got the Thermal Fatigue Management Program that has its own way of doing business that will manage the fatigue cycles of the Plant. EQ, of course, we have the EQ Program.

MEMBER POWERS: So these -- the Thermal Fatigue Management Program looks at thermal fatigue, but they don't look at vibrational fatigue or anything like that?

MR. ROBISON: No, sir. Actually, what we did for vibrational fatigue is we looked at and we thought about the number of operating hours that it would take at a certain high number of cycles before you'd see failure. And we concluded that many years before you ever went into the extended period of operation something that was going to break would have broken. It's almost like a hot function or a shakedown test. And because of that, because of this very, very short time duration, you're going to have operational problems. We couldn't look ahead 20 years and say we're going to go have a vibrational problem at that point in time because it would cause us to have to make a plant change if we believe in endurance limits and things like that. So somewhat of a

technical philosophy that we used on vibration.

Here are the last lists of some Plant-specific time-limited aging analyses: Reactor coolant pump flywheel, critical crack size we took a look at for 60 years, leak-before-break is reanalyzed, and then the other specific program was the standby nuclear service water pond volume at Catawba. We have a program that looks at pond volume periodically to make sure that the pond can contain enough water for it.

Now we're talking about site implementation, now we're talking about what caudle Julian referred to as Spec 16. We've actually even gone beyond Spec 16. What I've got up here are four bullets that just hit the highlights of the implementation area, but let me tell you a little why we do this. We were as concerned as some of the questioners this morning of what do we do 20 years from now when there's no one here to explain the commitment we've made? And how do we leave this commitment in good enough shape so we know how to implement it? And then I sat down with the site manager that said when do want to begin to implement some of these commitments? If indeed we wanted to play legal in licensing games and wait until year 40

to implement things, perhaps we'd miss something, perhaps the energy level of the staff or the interest level of the staff that we've just now been in the Plant three years are peaking, perhaps we have a whole new generation that wouldn't care about what we were worrying about.

So what we decided to do was begin to implement as much as we could today, and that led us to some things we can implement today. For example, the change to the chemistry program where we go into the program and make a notation that the chemistry program is important because of the commitments we've made for license renewal. Before you make changes to the chemistry program, be mindful of how the chemistry program's been used in license renewal. Easy enough to add that note to the chemistry program. the chemistry people wanted to go ahead and do it. Why should I wait 20 more years to do that? So we're making that change today.

In our implementation world, we've actually gone in and red-marked all the procedures for McGuire and Catawba. We're finishing that up this month, as a matter of fact. We're going to red-mark all the procedures and have everything ready to be implemented that can be implemented. Things that

cannot be implemented, for example, one-time inspections that need to be planned for the future, we will plan them at a certain level of detail with leading milestones such that the Plant licensing people, compliance people and the engineering people will know well in advance of any commitment date to go ahead and make sure they're planning the work. If, for example, the inspection requires NRC approval, that we get it to the NRC in the future, in time for them to review it and accept our techniques and then get in the Plant and do the inspections. We decided to go ahead and do that as part of a comprehensive implementation effort, and it will be in place at McGuire and Catawba, and it is in place already at Oconee.

In addition to that, we have written a specification called EDM-229, which is our engineering oversight of license renewal aging management programs. This particular directive allows us to take information that may come in from operating experience, from operations, from the NRC, from new knowledge we gain via EPRI and work it through a process down to the point of changing the programs that we have committed to for renewal if there's more knowledge or better knowledge that needs to be applied

in the Plant.

And in addition to EDM-229, we have an aging management site point of contact, this point person, this cognizant aging guru that will be on-site for us. We've actually got one at each location, each of the three locations, and Mike Semmler from our License Renewal staff will be our general office site point of contact, and he will be able to take the license renewal knowledge and transfer it into the implementation world with our site people. For those folks we have written a handbook. We've taken all the detail level, six-column tables and whatnot and boiled them down into things that can be a quick reference guide, so when a question about material applicability in the system -- I want to replace carbon steel with a piece of stainless steel, can I do that, and will I undo a commitment -- we've created a process where that can be easily be done by our SPOC, or our site point of contact. And that way we feel like we can maintain a bit of control rather than hoping that someone can go and read a commitment list or pull something out of a database in the future and trying to true the plant up with it at that point in time.

In addition to that, we've actually begun to train all of the people on-site that will be

associated with all of this work, again, raising the level of awareness. How that training carries forward in the future, it will be the single point of contact's responsibility to make sure that goes forward and there is a presence maintained in engineering for this work and for aging management now that we've gone to all the trouble of constructing this solution.

MEMBER ROSEN: So is that some -- these "Dr. SPOCs" you've --

MR. ROBISON: I was trying to avoid that term, but go ahead.

MEMBER ROSEN: I couldn't resist. They are now -- there's one in place for Oconee --

MR. ROBISON: Yes.

MEMBER ROSEN: -- and McGuire and Catawba, separately?

MR. ROBISON: Yes.

MEMBER ROSEN: So now they are able to talk to each other and get the programs in a uniform way.

MR. ROBISON: Yes. Again, that adds a level of maturity to our effort, and in Mike, similarly moving over from license renewal, he has moved actually moved over to the metals and metallurgy

area in our general office, and taking this knowledge with him, and he can chair a group among the three sites to continue this awareness, and ability to find common ways to solve problems.

MEMBER ROSEN: Are they pretty young people?

MR. ROBISON: Some of them are.

MEMBER ROSEN: I can be accused of ageism, but --

CHAIRMAN BONACA: Let me -- this completes your presentation, I guess. I have a number of questions regarding some specifics on scope issues, and I don't know if the best time is to ask them during the staff presentation on scoping, or -- and my sense would be let's take a recess right now, and then have you still here and we can ask questions regarding these issues.

MR. ROBISON: That's fine.

CHAIRMAN BONACA: And it may take more time, but we will take a recess until quarter-of-eleven..

MS. FRANOVICH: When we resume the meeting do you want the people from Duke at the table still?

CHAIRMAN BONACA: Yes.

(Whereupon, the meeting was recessed at

10:28 a.m., and resumed at 10:46 a.m.)

CHAIRMAN BONACA: Okay. Let's resume the meeting, and the way we are going to conduct it actually, even if we have questions of the applicant, we will ask them as the staff walks through the scoping and screening, and so on and so forth, and some of the answers will be provided by the staff, and some of them will be provided by the licensee.

MS. FRANOVICH: Okay. Bob Gill and I went back to the original RAI response for the containment air return exchange and hydrogen skimmer question. I believe you all have a copy of that now.

CHAIRMAN BONACA: Yes.

MS. FRANOVICH: And at the back of that response there is a drawing of the fan and the damper that indicates that these are one continuous or two components joined together without any duct in between, and if there are any questions on this diagram, I will defer to Bob Gill to answer them.

CHAIRMAN BONACA: No, it's just that -- let me just verify that from the text that it sounded like it was something in the drawing that was different from the plant. Now, it is a different issue.

MS. FRANOVICH: Okay. Maybe we can

improve on how we characterize this as being resolved in the SER to make it clearer.

MEMBER ROSEN: Did you say we have a copy of it now?

MS. FRANOVICH: Yes. Okay. Shall I go on?

CHAIRMAN BONACA: Sure.

MS. FRANOVICH: Okay. the scoping methodology audit was performed by a team of headquarters auditors, and Bill Rogers, here to my left led that team. and he is going to talk a little bit about how the audit was conducted, and what the findings and conclusions were.

MR. ROGERS: Good morning. I am Bill Rogers, and I am from the Equipment and Human Performance Branch. Our branch was responsible for the review of the scoping and screening methodologies for the review of the license renewal application.

The progress began with the desktop review of the LRA, and supporting documentation provided by the applicant. The audit was performed by a team of three of our branch engineers, a regional inspector, who was Caudle Julian, and the license renewal project manager, Rani.

We were on site for three full days to perform

the audit. During the audit, we reviewed implementing procedures, engineering reports, engineering procedures, design documentation, including system design basis documents, Q-lists, maintenance rule matrix, training records of the license renewal staff, and we had numerous discussions with the applicant's license renewal staff and management.

In addition, the team reviewed examples of implementation. This was a spot check. It was on four systems. Systems were chosen on or based on importance to risk and having a variety of safety related components within the systems and also in addition interfacing between non-safety and safety systems.

The applicant's approach is consistent with 10 CFR 55.4, being their consideration of safety related SSCs, non-safety related SSCs, and the evaluation of regulated events.

Concerning one of the areas which we had a request for additional information, the one area that I think might be of interest is the seismic II/I area. The applicant had taken the approach during the initial plant design to designate -- actually, to identify and designate certain non-safety related piping which could have a potential impact on safety

related SSCs, and they identified this piping as Class F.

They routed the piping into areas with safety related equipment when possible, and also took a mitigative approach, which would include things such as spray shield curves, qualification of the approximate safety related equipment, and this was done to prevent potential interaction.

As a result for license renewal, all Class F piping was included in scope in accordance with 54.4(a)(2). Contrasting this with other plants, the other Duke plant that was done prior to this was Oconee.

The issue of the potential spanning scope of (a)(2) was actually developed subsequent to that review of the LRA during the Hatch review. In contrast to other plants subsequent to the Hatch review, Duke's approach was somewhat different, in that they had taken actual steps during the initial plant design, which actually answered the (a)(2) question much easier than other plants.

Some of the conclusions that we drew during the audit was that the applicant's methodology and implementation was robust. The scoping process was well-defined and proceduralized. The license renewal

team was well trained on the implementation process.

And the audit provided confirmation of the process and implementation. The staff found that there is reasonable assurance that the applicant's methodology for identifying SSCs and scope of license renewal, and SCs that are subject to an AMR, is consistent with the requirements of 10 CFR 54.4, and 10 CFR 54.21, respectively, and is therefore acceptable.

MS. FRANOVICH: Any questions for Mr. Rogers? If you think of any, he is not going to be very far from here. So, thank you.

CHAIRMAN BONACA: And this is on methodology, right?

MS. FRANOVICH: Correct. Correct. Okay. Thank you, Bill.

MR. ROGERS: Thank you.

MEMBER FORD: I suddenly realized, because our methodology is not in specifics. To what extent do you ask the what if questions? And it comes back to the question that I heard earlier no about the pressurizer valve support lugs, which is one of the questions that came out in an RAI, and whether it was part of the scope or not when it comes to your methodology.

And the agreed upon answer from the applicant was that that particular valve would be supported by pipe restraints. It should be left into the concrete of the containment building I seem to remember, which is a fair enough answer I suppose in itself.

But is the what if question asked as to what if the concrete degrades where it is attached to the containment?

MR. ROGERS: Well, let me try to answer that.

MEMBER FORD: How deeply do you go into the what if question?

MR. ROGERS: I understand your question. To answer the question specifically about the concrete and the pipe restraints, that would be a level of detail that we would not get into during the audit. That would be a very specific question.

And that would be reviewed by another group of people subsequent to the audit, but in general, I think this might help. Part of their consideration of what ifs has to do with the actual experiences in the field.

And of course not hypothetical situations, and so the what ifs, at least from our audit point of

view, we would limit our what ifs to things that we knew had occurred in the field, and would therefore need to be considered by the applicant during their scoping and screening.

MEMBER FORD: But the experience in the field might only become evident during an accident situation, which hopefully is very rare.

MR. ROGERS: True.

MEMBER FORD: And so we are still sitting on an unknown.

MS. FRANOVICH: Well, there are currently inspectors and surveillances. For example, the maintenance rule requires that they monitor the condition of passive long-lived structures that you wouldn't know what the condition of those is unless you are either in an accident or you are looking.

So they are taking current actions that reveal problems, and that is part of the operating experience that they would tap from, if that answers your question.

MEMBER FORD: Okay. What you are saying is that that particular potential problem, and how well the attachments are held into the concrete if you like, would be covered in other maintenance programs?

MS. FRANOVICH: Well, not so much of that.

Another reviewer -- we have the audit team that looks at the scoping and screening methodology that was implemented by the applicant.

Then the reviewers here in headquarters review the results of those screening reviews performed by the applicant. The question that you are coming up with about the supports and embeddlement into the concrete structure would be addressed by the headquarters reviewers that are looking at what structures are in scope, what structural supports in are scope.

MEMBER FORD: And that is you?

MS. FRANOVICH: Well, I was the project manager, and so I have a staff of technical reviewers who actually did the technical evaluations of the information in the application.

And when we talk about Chapter 2, Scoping and Screening, I would like to address that question, because I know that you are eager to get the answer.

MEMBER FORD: Well, it is not specific. I don't doubt that the answer is probably correct. I am trying to delve into how deep do you go into the what if questions. That is essentially the question. I am not doubting your conclusions.

MS. FRANOVICH: I think the answer is that

we go as deep as what operating experience will support, because the statement of considerations for the license renewal rule indicates that we can't really ask the applicant to consider hypothetical failures.

It just mushrooms the scope of review to things that may not be reasonable. So the depth of our review is, I would say, dictated by operating experience that we can use to demonstrate that this really needs to be considered.

CHAIRMAN BONACA: My question was very simple regarding -- well, first of all, yes, in the application it is clear of the fact that the plants are recent -- the recent plants, are modern designs.

It is helpful, for example, the Class F piping, allows to have a full category of piping already identified that goes straight into license renewal. The bigger question was how easy was it to go from the genetic methodology to the tables provided in the application.

Did you have to do a lot of questioning in the other to understand how you would not be getting through that?

MR. ROGERS: Oh, to go to the results tables?

CHAIRMAN BONACA: Yes. Was there enough information or did you have some struggle? I mean, I have --

MR. ROGERS: Once again, that would be the next group on that would have to answer that.

MS. FRANOVICH: Let me try to answer the question. You are absolutely right. When it comes to understanding the methodology that they applied, and what you see in the AMR result tables, there is no nexus.

And the drawings are what bridge that gap. The drawings indicate what the pipe classes are for the various piping segments, and Duke's methodology was to include in scope piping that is designated Class A, B, or C, which falls into the safety related category, or class F, which falls into the support (a)(2) criterion for license renewal.

So we had to rely on the drawings really to bridge that gap.

CHAIRMAN BONACA: Yes. That is the reason that I asked these questions, is because I had trouble going from those statements to those tables, and so I just picked up from the table. Actually, I had to rely more on what was out of scope, and I had some questions about that at some point when we get to

those systems --

MS. FRANOVICH: Okay.

CHAIRMAN BONACA: -- than anything else, and then just again struggling for the question that I think the Commission is interested in, too, is how effective and efficient is the process becoming.

These applications are getting skimpier and skimpier, and does it mean that we really are improving, or is it in fact an obstacle to the reviewers?

MS. FRANOVICH: Let me address that in my presentation, but I think the message that I would espouse is that when it comes to scoping and screening, what was provided by Duke was very beneficial to the staff.

But we did have to rely on the drawings, and focus on areas of the drawings that were not in scope to determine if the piping and components met any of the criteria for scoping to see if everything that should have been in scope was.

CHAIRMAN BONACA: But you found that the drawings provided with the application provided you a very effective bridge between the methodology and the tables?

MS. FRANOVICH: I believe so.

CHAIRMAN BONACA: Thank you.

MS. FRANOVICH: Without the drawings, I don't see how the staff really could have done that review.

MEMBER ROSEN: And those drawings are of the piping and instrument documents mainly?

MS. FRANOVICH: Correctly.

MEMBER ROSEN: Not all the subset documents?

MS. FRANOVICH: Correct. Correct. Thank you, Bill.

MR. ROGERS: Thank you.

MS. FRANOVICH: I would like to ask Harold Walker and Tanya Eaton to come up to the table. We are going to start talking about the scoping results. But before we do, I did want to mention that there are some unique systems and structures associated with these two plants, because they are ice condenser plants.

They are late vintage Westinghouse four-loop design. They are what I like to call the Cadillac of nuclear power plants. They offer some systems that the staff had never seen before. Of course, the ice condenser containment structure, the annulus ventilation system, which draws the annulus

between steel containment in the reactor building to a vacuum during design basis accidents.

And the containment air return and hydrogen skimmer system, and the containment valve injection water system, which is a unique system for ensuring that the containment isolation valves do not allow leakage, especially the gate valves which were prone to leakage.

So I just wanted to mention those unique systems, and --

DR, LEITCH: I saw another unique system here that I didn't understand anyway that has been both McGuire and Catawba systems not within the scope, and in both cases, there is a system simply called oxygen system. I don't know what that means, and what is the oxygen system.

MS. FRANOVICH: I am going to take a stab at this, but then I am going to defer to the Duke folks. It may be a breathing air system.

MR. ROBISON: The oxygen system is a bulk oxygen system run through the plant for whatever you want to use oxygen for. It is just routed, and it is not in scope, and it really serves no function associated with the renewal scoping, but it is there for service work or whatever we are going to need it

for in the plant.

DR, LEITCH: Okay. Thank you.

CHAIRMAN BONACA: Among the systems not in scope, there are a couple of them that I am curious about, and I don't know if this is the right time to ask.

MS. FRANOVICH: Sure.

CHAIRMAN BONACA: One was the condensate storage tank. I mean, throughout the application and the SER there is written that the condensate storage system is an known safety system whose failure could prevent satisfactory accomplishment of certain safety functions.

Therefore, it is an (a)(2) kind of system. So that is in scope. Well, it says that the parts with system design are in scope. What about or why is the condensate storage tank not in scope? That is the one that provides the supply to the system.

MS. FRANOVICH: Let me ask a question. Were you just reading from a previous application or from our SER?

CHAIRMAN BONACA: From the SER.

MS. FRANOVICH: From our SER?

CHAIRMAN BONACA: Yes.

MS. FRANOVICH: And you were reading from

the condensate storage?

CHAIRMAN BONACA: Yes, Subsection 2344.

MS. FRANOVICH: At the time of McGuire, they have what is called an auxiliary feedwater condensate storage tank. They also have a condensate storage tank, but it is not a primary supply, or maybe even a secondary supply for the auxiliary feedwater suction.

The insurance supply is the nuclear surface water system. So that is the safety related supply for aux feedwater. The aux feedwater condensate storage system is part of a larger condensate storage system that provides quality water to the steam generators, but it is not safety related. So it doesn't mean --

CHAIRMAN BONACA: So what you are telling me is that a condensate storage system will operate and will have a supply of water independently of the condensate storage tank?

MS. FRANOVICH: Well, the condensate storage system consists of a number of tanks. The aux feedwater condensate storage tank, and the upper surge tanks, the condenser hot well, they all provide a volume of condensate grade water, but none of them are safety related.

So that system doesn't meet the license renewal scoping criteria.

MS. HAZELTINE: But really the reason that part of the system is in is because it is Class F piping.

CHAIRMAN BONACA: I'm sorry?

MS. HAZELTINE: It is Class F piping, which falls into the (a)(3) category, the non-safety that impacts safety.

MS. FRANOVICH: Okay.

MS. HAZELTINE: And that's why -- and in fact I think it is only at Catawba because of the routing differences between the plants. It is the physical layout differences, and that part of the condensate storage systems are in scope at Catawba because they are Class F, and they are routed near safety related equipment so that their failure can't impact a safety function.

And so it is not for a functional reason. It is an interaction.

CHAIRMAN BONACA: So you are saying that the only reason why there are in scope is because their failure could cause an impact on other systems, and not because the function of a system has to perform?

MS. HAZELTINE: That's correct.

MS. FRANOVICH: Right.

MEMBER ROSEN: Now, let me understand this. Are you saying that collectively that safety related supply of auxiliary feedwater is actually service water?

MS. FRANOVICH: Yes.

MEMBER ROSEN: What is the quality of that water?

MS. FRANOVICH: It's not very good.

MEMBER ROSEN: So that if you have a reactor plant trip, do you inject this water in that case or not?

MS. FRANOVICH: No. If you have a reactor trip, then the primary source as such would be the condensate grade water to preserve the steam generators. But if you have a design basis accident, the seismically qualified source is the service water.

MEMBER ROSEN: And how many times is that injected into the steam generators, these machines?

MS. FRANOVICH: Not many.

MS. NADER: Once at Catawba, and I believe that's all. Once at Catawba.

MS. FRANOVICH: Do you know if that was Unit 1 or Unit 2, because I know that we have new

steam generators on Unit 1.

MS. NADER: And it was prior to steam generator replacement, but I am not really sure which unit it was.

MS. FRANOVICH: Okay.

CHAIRMAN BONACA: Another question I had was about the control rod drive ventilation. Why is that not in scope?

MS. FRANOVICH: I will take a stab at this, and you guys can chime in. My understanding is that that system does not perform an accident mitigative function at all. It is not a safety related system, and I think it provides cooling to the CRDM components during normal operation, but there is no accident mitigating function of that system.

MS. HAZELTINE: That is the consensus over here as well. That is a normal operating system, but doesn't function during an event, and so it is not safety related.

CHAIRMAN BONACA: So that means that your rod insertion was not impacted by that? And then there is another one that sounds funny to me, and that was the containment ventilation. What system is that?

MS. FRANOVICH: Yes. Now, the containment ventilation system was the subject of a lot of

discussion when we had our early on conference calls, and the containment ventilation system is required to ensure that a certain text spec requirement is met.

The tex spec is really containment temperature. I believe it is 80 to a hundred degrees in upper containment, and a hundred to 120 degrees in lower containment. But that is just to ensure that the initial conditions of the design basis accident are met.

Once the accident occurs the system can go away. It doesn't mitigate the effects of the accident. The ice condenser is what controls the internal temperature and pressure of the containment post-accident.

We had to go back to the text spec basis to ensure that that was indeed the design basis of the plant and that is exactly what we have.

CHAIRMAN BONACA: And you apparently have reviewed that. I mean, you are knowledgeable of that.

MS. FRANOVICH: Yes.

MEMBER ROSEN: Now, while you have the slide on that you have on now, that shows the unique systems instruction, and all four of those systems are in-scope?

MS. FRANOVICH: Correct. Of course, the

ice condenser containment is more of a structure than a system, but it is in scope. Any other questions?

DR, LEITCH: I have a question about the electrical scope. I guess we are going to have an opportunity to talk about the electrical system later?

MS. FRANOVICH: Yes. We are going to go through the results of each of the sections of their application.

DR, LEITCH: So the question is really out in the switch yard just exactly where the break is between in scope and out of scope.

MS. FRANOVICH: Okay. I can answer that.

MEMBER ROSEN: That's one of our favorite set of questions, and of course the other set is about this open contention on severe accident litigation during station blackout.

MS. FRANOVICH: Okay.

MEMBER ROSEN: And not unrelated.

MS. FRANOVICH: Okay.

CHAIRMAN BONACA: And that issue, I mean, you should address it and tell us if it is a correlating license basis issue, and that's why it is separate, or --

MS. FRANOVICH: You are talking about the GSI issue, the SAMA contention?

CHAIRMAN BONACA: Yes.

MS. FRANOVICH: I will. I will.

CHAIRMAN BONACA: Okay.

MS. FRANOVICH: Should I talk about that now or should we -- because I don't know if there is a -- why don't we talk about it when we get to the station blackouts scoping results.

CHAIRMAN BONACA: Very good. Let's do that.

MS. FRANOVICH: Okay. The staff's review process is essentially to review the UFSARs for both stations, and review the piping and instrumentation diagrams, and be familiar with the license conditions, and interim staff guidance or ISGs that the staff has issued to communicate positions on license renewal scoping to the industry.

And the staff is directed by its review guidance to focus on out-of-scope systems, structures, and components, to ensure that nothing that meets the scoping criteria was omitted.

The scoping results have to do with the staff, or I'm sorry, the applicant's determination of what systems, structures, and components, meet the three criterion in 54.4. (a)(1) is for safety related SSCs, or systems, structures, and components.

(a)(2) is for non-safety related that support those safety related SSC functions; and then the third criterion is for regulated events -- fire protection, ATWS, station blackout, PTS, and environmental qualification.

And then what the staff did was review the screening results which the applicant performed to determine which components were passive, and which components and structures were long lived and not subject to replacement.

For the reactor coolant system, which consisted of Class One piping valves and pumps, pressurizer, reactor vessel and CDRM pressure boundary, steam generators, and the reactor vessel internals, the staff did not identify any open items.

And this would be a good time to address your question on the pressurizer valve support lugs, and I am hoping that Muhammad Razzaque is in the audience, and if he is not, then we may need to come back to it.

I don't see him, and I guess I will come back to that question as soon as I do see him here.

MEMBER FORD: I think you can defer that question. My question really was as I said before inquiring into the depth of the issue, because I am

ont questioning the conclusion.

MS. FRANOVICH: Okay. And we answered the question on the depth.

MEMBER FORD: Yes.

MS. FRANOVICH: Very good.

CHAIRMAN BONACA: I have some questions later on, on the reactor vessel internals. This is just scoping right now, right?

MS. FRANOVICH: Correct.

CHAIRMAN BONACA: So we will talk about that when we get to the ageing management problem?

MS. FRANOVICH: Correct. Sure. Sure. Any questions about this slide? Okay. One thing that I did want to mention was that the reviewer who reviewed the RCS scoping results questioned whether or not the pressurized respray heads should be within the scope of license renewal.

And as a result of an RAI the applicant agreed that the sprayheads should be in scope because of a post-fire reliance on auxiliary spray to reach cold shutdown conditions.

So they also brought in a new inspection or ageing management program that is not in the SER, and that is the only AMP that was added to the license renewal application.

MEMBER ROSEN: And when that happens does the staff go back and think about what other -- and maybe this is a broader question for PT, but when the staff gets a revelation like that, what are the implications of that to the previously licensed extended term plans?

MS. FRANOVICH: That is a very good question and I will take a shot at this PT. The staff reviewer actually asked this question of the applicant because he read in the USFARs that they rely on this auxiliary spray for post-fire events.

So his question was prompted because in the rigor of his review, he identified this potential function that may meet the scoping criteria, in particular (a)(3), for fire events.

The rigor of the staff's review has always looked at the USFARs, and they have always relied on the USFARs as a source of what the design basis of the plants is. So when this came up, it occurred to the staff that post-fire events had not been a design basis event that the staff considered reliance on the pressurized spray for previously.

But at the same time the staff was reviewing the USFARs and if a prior applicant had relied on the sprays for a fire event, the staff would

have found that in the USFARs, assuming that that level of detail was available to the staff.

But I believe that what we are doing since we recognized that this post-fire event is somewhat obscure, is that we are looking back at the USFARs for previously renewed plants to see if we find similar words in there.

If we do, we have the 50.109 backup process that we will follow to address that. Does that answer your question?

MEMBER ROSEN: Oh, eloquently. Now I am interested in what you find.

MS. FRANOVICH: Okay. We will keep you apprised. We will keep you apprised.

MEMBER ROSEN: And I think I am interested and encouraged by all of this, and that there are smart people on the staff asking penetrating questions, and that is a good thing.

MS. FRANOVICH: Right.

MEMBER ROSEN: And occasionally they will --

MS. FRANOVICH: Find something.

MEMBER ROSEN: -- find something, and then what do we do with that when they do is the question.

MS. FRANOVICH: Right. And another thing

with this particular reviewer, he did a wonderful job. He also found that steam generator support structures were not in scope. Things like the U-bend support anti-vibration bars, lattice structure support plates, and as a result of an RAI, they brought those things in scope as well, and provided the ageing management review results, and credit their steam generator surveillance program for them.

So it was a good staff review, and there is my reviewer, but I have already answered his questions, and so he is off the hook. Hi, Muhammad.

MR. KUO: If I might add to what Rani just said, that in fact we have established what we call the interim staff guidance process. Whenever we have a lessons learned like this, we will put that into the IC process and see if there is any safety concerns, and then we will apply this 5109 back to the process ot the issue.

MEMBER ROSEN: And frontfit.

MR. KUO: Right.

MEMBER ROSEN: In other words, people who come after will have the opportunity to answer this question, too.

MS. FRANOVICH: Right. Right. Okay. Engineered safety features. I have just listed a few

here, but there are quite a number of -- well, I think there are eight of these systems. The annulus ventilation system, safety system, residual heat removal system, and containment valve injection water system.

We have three open items under the ESF section of the SER that also apply to auxiliary systems. The applicant did not indicate that fan housings and damper housings were within the scope of license renewal.

We have not resolved those two open items yet. Another thing that the staff found was that structural sealants were not addressed in the application. So that is something that the applicant has provided aging management programs, or proposed aging management programs, for.

Programs that are being credited right now for structural sealants -- and this is for things like the control pressure boundary envelope, the containment, and the spent fuel pool-building, and these are structural sealants that have to provide a pressure boundary for the structures.

And the applicant is proposing some differential pressure surveillance tests, but the staff is concerned that those tests really assess the

performance of the fans that are either drawing a vacuum or pressurizing the structure.

And feel that perhaps a visual inspection of the structural sealant may provide a better indication of the condition of the sealants. So those are the three open items under the ESF section of the SER.

CHAIRMAN BONACA: We need to hear more about fan housing and damper housing. I mean, this was an issue that was debated with industry, and with closure on it, and now it is reopened, and what is the contention?

Clearly there are passive components, although they have fan or reactive components in them. So what is the issue?

MS. FRANOVICH: Let me first update you on the ISG, and then I will defer to Duke to answer the question.

MEMBER ROSEN: Tell me what ISG is.

MS. FRANOVICH: The interim staff guidance. We issued an ISG, interim staff guidance, on the staff's position with respect to passive components, or passive subcomponents of acting -- passive housings really of active components. In particular, the fans and dampers.

I believe that NEI commented on our ISG, and we are now revising it to address some industry concerns that there will be a slippery slope, and the staff will start looking for instrument housings and scope.

But that ISG is not formal yet. However, the staff's position on housings is fairly well established, and it has been fairly consistently applied. I think for Oconee that there were certain damper housings that were not included in the scope, and the staff back then -- and this was only the second applicant for license renewal -- agreed with Duke's argument that fan or dampers are active.

But that was before we wrote our ISG, and since then we have consistently applied the position that housings for active components belong in scope of license renewal, and with that update, I am going to let the Duke folks address that contention.

CHAIRMAN BONACA: Let me understand now. If the damper housing or fan housing loses integrity, you are losing the pressure boundary aren't you?

MS. FRANOVICH: That's correct. That is the staff's position.

CHAIRMAN BONACA: And the same issue is on the building sealant, and let's stay on the housing

now, and try to understand what is the logic behind this.

MR. ROBISON: I'll be glad to offer some thoughts here. When we read the license renewal rule, and it excludes fans and dampers, we don't break them into subcomponents. If a fan has blades, and connections to a motor, and a housing, it is the fan.

We don't go in and begin to subdivide that piece of hardware. And that was the philosophy that we used on Oconee. The performance test of the fan will be the performance test of the fan with its entire set of components.

We didn't try to get cute and make it any more detailed than that, and when we went back through the discussions that we had had in industry over the last 10 years, we had never subdivided those components that way.

CHAIRMAN BONACA: So what you are saying is that the test of the adequacy of the housing result from the active test --

MR. ROBISON: Of the fan, yes.

CHAIRMAN BONACA: Rather than by a visual inspection of that housing?

MR. ROBISON: Yes, and that was the position that we began with, again consistent with

Oconee's as Rani has pointed out.

CHAIRMAN BONACA: And what is wrong about looking at it, too? I mean, that is not -- this is not a brainer. I mean, you know, this housing is a pretty busy boulder.

MR. ROBISON: Sure. I mean, I don't --

CHAIRMAN BONACA: I mean, you walk by and you see it completely corroded with bolts falling out, and you just say, yeah, but the test didn't work. And will it tell you that maybe you want to do something?

I mean, I am just trying to understand, you know.

MEMBER ROSEN: The resting tells you that it just worked, but it doesn't tell you anything about the future.

CHAIRMAN BONACA: Right.

MEMBER ROSEN: Whereas, it might be just about able or ready to fall apart, and you could see that if you looked at that.

CHAIRMAN BONACA: Exactly. And, you know, I -- that's right.

MR. ROBISON: And if I can add, that Rani again pointed out that one of the slippery slope items was what about a motor housing. What about an instrument housing. It was more -- Duke was not

arguing so much for a particular fan in the plant.

It was more of the design of our industry guidelines that we put together, and at the philosophical level how many components are we going to subdivide, and how far will this go.

And there was a feeling -- you know, a general philosophy feeling that there was some instability being introduced in the process here. And not to mention at Duke, as you pointed out, we didn't use this philosophy at Oconee, and we were trying to be consistent.

One of the difficulties that we have with three sites is to try to remain consistent between the three sites. This is beginning to cause us to look. And you are right. It is not that big an issue to go and take a look at the fans that would be within the scope of renewal.

But again our arguments were more at the philosophy level and making sure that our guideline documents and what not were consistent.

MEMBER ROSEN: I think your argument sounds from the philosophical standpoint, but in practice you do look at the fans, and when they go out there on the desk, there are people around, and they look at them, and they are not blind.

And so the amount of additional work is probably next to nothing. It is a process question, and maybe my mind has just gone blank. But have we dealt with a plant and license renewal -- I am asking really Mario and Graham -- where open items were -- that things were still open when our letter was requested?

CHAIRMAN BONACA: Well, you know, this is -- yes. all the time. The process has always been that we receive an SER still with open items.

MEMBER ROSEN: Yes.

CHAIRMAN BONACA: And then in the early times when we were looking at each design, we also wrote an interim letter, you know, discussing that.

MEMBER ROSEN: All right.

CHAIRMAN BONACA: And we kept discussing very much the open items there, and just to let them be resolved, because there was a lot of integration between the industry and the staff.

And then we wrote a letter for the final SER when it comes with all the open items closed. We have taken an approach now whereby we look at what I call the interim SER with open items, and we don't write typically a letter unless there is something that we want to communicate to the staff really, and

then we review again the SER with closed items.

MEMBER ROSEN: So we will have an opportunity again later to write a letter, a final letter.

CHAIRMAN BONACA: Yes.

MEMBER ROSEN: So our decision today will be to listen and then decide if we want to write an interim letter, and point maybe some views on these open items perhaps.

CHAIRMAN BONACA: Yes.

MEMBER ROSEN: But ultimately a clean application where the staff has resolved the open items, and we don't have to be guessing about where they end up.

CHAIRMAN BONACA: Right. Now, on this fan and damper housing, if I remember it was at Hatch that it was an open item, and it was debated, and then it was closed.

And the industry really took a common position on that. I mean, there was some concurrence between NEI and I believe the industry in general, and the staff. And these housings were included in the scope of license renewal. It was after Oconee, of course.

And what concerns me is if there is a

position that is accepted by the industry and the staff at a further point on, we should hold to that, hold on to that. Otherwise, this process is not going to become streamlined, effective, and efficient.

Now, I understand the concern about a slippery slope, but I think -- I don't think we are on that slope, because some of the other issues are not being reopened, and they are already settled.

MS. FRANOVICH: Yes. The only RAIs on housings for active components that Duke needs to address are the ones for dampers and fans.

CHAIRMAN BONACA: Yes.

MS. FRANOVICH: And the staff's position is that these housings are really no different from valve bodies and pump casings. And for some of the ventilation systems that are carrying radioactive gases, we feel that a breach of the ducting, and a breach of the housing are equal conditions that are adverse to quality.

CHAIRMAN BONACA: Yes, but the question is why do you have to wait until you have lots of functions before you do go and --

MS. FRANOVICH: Do corrective action?

CHAIRMAN BONACA: -- do something about it.

MS. FRANOVICH: Right. Right. So those are the three outstanding open items. We have not been able to resolve them, but we still have a couple of weeks.

MEMBER ROSEN: Well, you can have a small amount of degradation, some corrosion, which is causing some leakage from the housing, which could be clearly visible, and these are systems that carry humid air, and they could corrode. It would be clearly visible to an inspection.

Whereas, a fan or damper could still work on the command to close or open. And the delta p's that are required for testing could still be apparent because so much air is being transferred through these systems compared to the leakage that these systems could still develop the correct delta p's.

But on the other hand, they could be leaking as Rani pointed out substantially. So there is two different things that we are talking about here.

CHAIRMAN BONACA: We have supported the last decision that we had on Hatch of including this fan housing and damper housing, and my perspective is that I should report this back to the staff.

MS. FRANOVICH: Thank you. Okay. With

that, we will go on to the next slide. And this is a slide that discusses the scoping and screening results for auxiliary systems, and these are just examples of the kinds of systems that fall into the auxiliary systems category.

There were, I believe, 38 of these auxiliary systems in the application. We identified two open items that pertained to -- well, actually, the SER says that we have six open items in fire protection.

We have resolved or made confirmatory four of those items. The ones that remain unresolved have to do with whether or not jockey pumps belong within the scope of license renewal, and manual suppression capability for potential fire exposure areas.

And in particular I think the SER mentions the turbine building. for the jockey pumps, the applicant does not believe that they perform a function to mitigate a fire event. Therefore, they are not required to be in the scope of license renewal.

The staff's position is that these components are relied upon to meet requirements of 50-48. The staff has traced back commitments by the applicant to have these jockey pumps to maintain

pressure on the fire system header to prevent constant cycling of the main fire water pumps.

And as part of their licensing basis, that they commit to having these jockey pumps, and therefore because they are relied on to meet the requirements of 10 CFR 50-48, they have to be within the scope of license renewal.

Manual suppression capability in fire exposure areas is one where Duke is going back to do a little more research into where their fire exposure areas are. But the applicant's position is that fire barriers is what they rely on to prevent a spread of a fire from the turbine building to safety related structures, like the auxiliary building.

The staff believes that they have to have the fire barrier, but to provide defense in depth manual suppression capability also is required. Therefore, the suppression water system, and parts of that system that protect the turbine building should be within the scope of license renewal.

And that is the status of those two open items. The confirmatory items, as I indicated --

MEMBER ROSEN: Before you get off that, do we want to ask the applicant at this point to address those so we understand where you come down on the

question of those two items.

MR. ROBISON: Let me preface it by saying that Caudle Julian mentioned earlier that we had used our QA 3 designation to identify fire protection items for license renewal.

What we have done to follow up with these additional questions from the staff is to do a very detailed licensing and design review. We have gone beyond labels. We have gone back into the document set to make sure that we understood the plant.

Now, on these particular items, we read the 54.48 requirements apparently a little differently than the staff does, at least at this point. We are still doing some more homework again. We owe our responses here in a few weeks.

The way we have our system designed the jockey pump failure will not prevent the accomplishment of what we believe the functions associated with 50-48 are. Neither will the failure of a jockey pump lead to cycling of the main pump because of the way that things are designed in the system.

What we want to avoid here is splitting hairs on the details of the design of the plant, when in fact we may get to the end and say, well, it is

just carbon steel with lake water in it. Don't you already have programmatic oversight of those types of things.

So we don't want again to get down into the legalities of what meets what function, and splitting what hair. Up to this point in our plant design, the jockey points have not held that high a place as our main pumps and our main fireheaders have obviously.

And so what we want to do is make sure that we are clear on what our design and licensing basis today, and we will be going forward, so we don't take some sort of odd step change for license renewal. So that is where we are.

We have not fully resolved where we are on the jockey pumps. Now, on the manual suppression, when we went back and took a look, again we are doing a detailed licensing review to see exactly how we answered many of the license renewal, branch technical positions and what not from years past, not trying to guess at the top level label level what the answers are, but really dig down deep, and read all the letters, and read all the correspondence, and reconstruct something that we can feel confident in today, and we can feel confident in, in going forward

in the future.

When we met with the staff, a very helpful meeting on the 1st of October, we did describe features in our design that were somewhat unique to our plant the way that things are laid out, and one of the staff reviewers even pointed out, well, that's not typically the way it is done in a commercial business, or in another nuclear plant.

They wouldn't lay the piping facility out the way that you have described it, and perhaps that is different. Perhaps we need to understand better your design. Again, we are going to go do some homework and make sure that we can tell that story.

CHAIRMAN BONACA: So essentially the staff and the licensee are going to work to clarify the licensee basis of this plant, and then they will live by that.

MS. FRANOVICH: For the second item, Dr. Bonaca. For the first the staff feels like it has a thorough understanding of the licensing basis, and what it comes down to is whether or not the applicant would acknowledge that what they credit to meet 40-48 is the only criterion that they have to focus on to bring it within the scope of license renewal.

So the licensing basis, we need to

understand a little bit more for the second item. But for the first one, the staff feels very confident. And another thing that I would like to mention is that for the previous applicants, they have all brought their jockey pumps into scope.

Maybe not initially, but after RAIs and discussions with the staff, and also Oconee included the jockey pumps in the scope. So we are looking for consistency.

MEMBER ROSEN: It seems like that is what you want, Duke, consistency.

MR. ROBISON: Oconee didn't include the jockey pumps in the scope.

MS. FRANOVICH: I looked at the PNIDs and saw that they were highlighted for the jockey pump, I believe, but we will check on that. We will check on that.

MEMBER ROSEN: It seems to be a little bit of difference as a factual matter that could be cleared up easily.

MR. ROBISON: Yes, and just a technical point of note. The layout of the system, and the design of the system from McGuire and Catawba is much different than many of the other applicants who have come through renewal.

It has to do with the physical layout and proximity of equipment, and those types of things as well. Again, I don't know that we are at an impasse that can't be bridged. We want to make sure, and we are not as confident as the staff in our interpretation of the regulations, and we are doing our homework.

MEMBER ROSEN: I think that is all very good, but I would say that in the fire protection area, as well as in many others, but in particular in the fire protection area, the views that were expressed by Rani about the defense in depth I share.

One has to be very careful when you are talking about fire and nuclear plants, and that we don't rely on one aspect of what we put in place; detection, prevention, mitigation. All of these things are important.

So I would encourage Duke, as the staff has seemed to have been encouraging you, to think holistically about fire protection, and not overly credit one aspect of the fire protection program.

MS. FRANOVICH: Thank you. And Tanya Eaton is the reviewer on my left here, and she is the lead fire protection reviewer, and she has done an outstanding job digging through their licensing basis

to identify these things that appear to be excluded.

So I would like to commend her on her effort. Harold Walker, on my right, was the lead coordinator for the staff's review of scoping and screening.

So I would like to acknowledge his contribution as well. I would like to go on to the confirmatory items before we leave this slide. One of the questions that came up was why were there so many open items. Is there an efficiency and effectiveness problem with the staff's review.

And if so, is the problem with the application or is it with the staff's review. Some of these confirmatory items were items that we probably could have resolved with a potential open items letter, which is a letter that the staff issues to the applicant several weeks, or maybe a month, before the SER open items is to be issued.

It is the last opportunity to get answers to questions to preclude unnecessary open items in the SER, and some of these confirmatory items pertaining to replacement of consumables were identified after the potential open items letter was issued.

So there were four opn items and one confirmatory item that probably could have been

precluded if the staff had recognized that we didn't have sufficient information from the applicant earlier to resolve these items.

With that, I would like to go on to scoping and screening of ESS, and auxiliary -- I'm sorry, we already did ESS. Steam power and conversion systems. The staff asked a number of questions of the applicant, and we didn't issue any official RAIs.

We just asked some questions preliminary to find out about flow accelerated corrosion in certain areas of the secondary system piping, and concluded based upon our discussions with the applicant that for the piping segments that met the scoping criteria, if you looked at the piping and instrumentation diagrams, the pressure and temperature ratings for that piping did not present the conditions that would lead to flow accelerated corrosion.

And that was the primary concern that the staff had. There were some other segments of piping that was scoped for which they credited the flow accelerated corrosion programs. So there was no concerns with what they did credit that program for.

The staff just wanted to make sure that they found all the areas that would cause that adverse aging effect. So there were no open items for this

section.

CHAIRMAN BONACA: The question about the main steam bypass to condenser, which is not in scope. I would not see that as a separate system, but I would like to understand that if you have a load reject, what is the design in the relief system?

MR. ROBISON: Your question is about pressure settings or --

CHAIRMAN BONACA: Well, no. The percent of --

MEMBER ROSEN: The capacity.

CHAIRMAN BONACA: The capacity.

MS. FRANOVICH: I can share some antidotal on Catawba. There was a load reject and the turbine ran back to 12 percent from a hundred percent, if that is what you are asking for. I think they are designed to at least run back to 50 percent, if not more.

CHAIRMAN BONACA: I am trying to understand the reliance that they have on the main stem bypass to the condenser.

MS. FRANOVICH: Let me try to give an answer to that. Unless it meets one of the scoping criteria, it won't be in scope, and the main steam bypass is not safety related, and it is not required to support a safety related function.

And to my knowledge, it is not credited for the blackout event or ATWS.

CHAIRMAN BONACA: No, but I was more curious to understand the logic behind the fact that for this kind of design it would not be -- well, I guess generally it is not separately related. All right. Anyway, if you can get information, and it is just more for my curiosity than anything else.

MS. FRANOVICH: Okay.

MR. ROBISON: We do understand on the secondary plant that there are many areas in the secondary plant that are not in the scope of renewal, but certainly followed in our accelerated corrosion program.

Things where you are putting steam back into a vacuum will cause all kind of havoc as far as erosion, and we know that, and those are key points in our program. But that doesn't happen to be something that falls within the purview of the license rules scope.

But it is certain something that is important to us at the plant.

MS. FRANOVICH: So, Dr. Bonaca, this is a follow-up item, and what you are looking for is --

CHAIRMAN BONACA: Keep it out of the

record. I don't believe it is in scope.

MS. FRANOVICH: Keep it out? Okay.

CHAIRMAN BONACA: But it is more of my curiosity to know what is the bypass capacity and if you have a lot of rejection.

MS. FRANOVICH: Okay. We will work with Duke to get an answer to that question. Mike Semmler, Duke staff.

MS. SEMMLER: The main steam bypass condenser is about 45 percent of steam capacity. But we have the system in as main steam vent atmosphere, which is 55 percent capacity of the steam.

So if we have a low rejection to 50 percent that lifts, and that is where it goes, and then the power operator relief valves are about 10 percent.

CHAIRMAN BONACA: So you are really getting a hundred percent that way?

MS. SEMMLER: Yes.

CHAIRMAN BONACA: Okay. Thank you.

MEMBER ROSEN: So you can have a full load rejection and keep the reactor on line; is that what you are saying?

MS. SEMMLER: That's the intent, that you could have a turbine reback and reject. In theory, it

is supposed to work, but it only worked -- I think only 50 percent full load rejection has really worked, and a hundred percent doesn't work that way.

MS. FRANOVICH: And this is for both Catawba and McGuire, Mike?

MS. SEMMLER: That is my understanding, yes. I don't think we take credit for a hundred percent full load rejection. I think it just automatically trips the plant at that point.

MS. FRANOVICH: My recollection on Catawba is that that is the design. The design is that it can withstand a 100 percent load rejection, but the closest that I have seen is when it went down to 12. the turbine ran back, to 12 percent without --

MS. SEMMLER: Right, without a rack trip, and I think usually when you get past 50 percent, I think the steam generator level rises too quickly, and we just end up tripping anyways.

MS. FRANOVICH: Okay.

MS. SEMMLER: So I know that we had done a load rejection of 50 percent several times, and it has been successful to do that.

MS. FRANOVICH: Sure. Thank you, Mike. Okay. On to the next slide. Structures. The staff reviewed the scoping and screening for structures.

The reactor building included the concrete shield building, the steel containment building, or vessel, and reactor building and internal structures.

For the other structures, that includes things like the turbine building, the auxiliary building, the nuclear service water system, pump, pump house, pump structure, the standby shutdown facility, which is credited for fire events, and security events, and station blackout.

Component supports included things like battery racks, and cable trays, new and spent fuel storage, platform and grading supports, control boards and crane rails, et cetera.

And there were a number of RAIs, but the staff was able to have all the RAIs addressed by Duke's responses. So there were no open items in this section either.

Okay. The results for electrical. Duke's approach to performing its electrical review was to identify all passive electrical and I and amp; C components, and to identify those components that -- I guess at that point they didn't include them all in the scope.

They basically evaluated them all, and then identified those that didn't meet the scoping

criteria, or actually what Greg describes is probably more accurate. They did a space ease approach, and conservative scoped in more than what met the scoping criteria.

I see Paul Colaianni coming up to the mike, and so I will let him clarify that.

MR. COLANIANNI: Paul Colaianni, Duke Electrical Lead. Yes, we basically took a conservative approach with all electrical, especially cables, and that included all cables within the plant and the switch yard within scope as far as what materials and environments we consider in the aging management review.

We took all of that and put it together, and we found where we may have problem areas, and that became the basis for our program. In the beginning, we did initially cut out some electrical components, but we ended up in augmenting our scoping for station blackout by putting in most of the switcher passive components back into scope.

MS. FRANOVICH: And I think part of the process, and Paul, correct me if I am wrong, was to identify those things that were subject to replacement and that were not long lived, and remove those from the scope of license renewal as well.

MS. SEMMLER: Right. We did basically exclude all EQ equipment from the aging management review as being long lived.

MEMBER ROSEN: Because those have been determined --

MS. SEMMLER: That's correct, because they are replaced based on the qualified life.

MS. FRANOVICH: At this point, I would like to put up a slide to help illustrate the electrical distribution system for Catawba and McGuire, and they are very similar for each.

One of the staff RAIs was on the recovery path for station blackout, and Duke brought in, as Paul indicated, a lot of equipment as a result of that RAI response. And I just wanted to outline for you what was brought in that had not been in scope originally.

CHAIRMAN BONACA: All right.

MS. FRANOVICH: This is potentially the switch yard, and you have the PCBs coming into sight, and the main transformers, and then your step down or step up transformers, depending on whether we are producing power or getting power from off-site.

Essentially, the path goes from here, down this way to this breaker, and continues down to this

transformer, a 6.9 kV bus, and all the way down to the four 4.16 kV potentially bus. Both sides.

So what came into scope was the passive components associated with this power pack. And at this point, I wanted to check and see if there are any questions about the station blackout recovery path, and the scoping and screening for license renewal.

MEMBER ROSEN: Well, let's be sure that we understand when you talk about passive components. Which ones are passive by your definition?

MS. FRANOVICH: Well the cables connection, and things that would be active would be things like breakers, which actually move.

MEMBER ROSEN: But not transformers?

MS. FRANOVICH: Transformers? No.

MR. COLANIANNI: The transformers are active.

MEMBER ROSEN: Right.

MR. COLANIANNI: And to answer that more fully, in addition to that power path, what specific amounts were added that are passive are phase bussing. There were some isolated phase buss in the 22 kV system that you see there, and that was an isolated phase bus that connects those transformers and the generator.

And then there is also between -- going down to the 6900 buses, there is segregated phase bus, or excuse me, non-segregated phase bus, where there is three phases within one housing, versus the isolated phase bus, where there is just one phase within a housing.

And so it did add phase busing to the scope, and then out in the switch yard, of course, it added the transmitter conductors, the bare conductors that you normally see on transmission lines, those types of conductors, connecting the plant to the switch yard.

And the large insulators that hold that conductor in place for that connection to end within the switch yard itself. And we also added the -- you see the 2.30 kV there, and that is on what would be the switch yard bus.

There are two long buses that we added to the scope of the license renewal review, and that comprises the additional passive components.

MS. FRANOVICH: Thank you, Paul. Any other questions?

DR, LEITCH: I am still a little confused about the switch yard. Everything, all passive components of the drawing that we see are in scope, or

does the scope end at the -- at where the high side of the transformer ties into the switch yard?

MS. FRANOVICH: I think that this is the evaluation boundary, right; the first active component from the switch yard?

MR. COLANIANNI: Take that one breaker below that.

MS. FRANOVICH: Right here?

MR. COLANIANNI: Yes. That breaker and the one right below it are called the bus line PcVs, and so those two breakers, which is the connection to the plant, is called the bus line. Those are the boundaries of what actually is in scope.

DR, LEITCH: Okay. Thank you.

MEMBER ROSEN: What does the relay house fall in your mind?

MR. COLANIANNI: The relay house as far as the scoping comes into the controls that would be needed to close those breakers, the bus line breakers. So the controls, the batteries, that may be needed to function those breakers, would be in scope, and not pulled into the relay house.

MEMBER ROSEN: So the relay house and all the components in it are in scope?

MR. COLANIANNI: Yes.

MR. COLANIANNI: Well, all the --

MS. FRANOVICH: Passive.

MEMBER ROSEN: All the passive components.

MR. COLANIANNI: Yes, all the components needed to open or needed to close those breakers again, and the structure to support those electrical components, like the batter supports, and then the physical structure itself.

The cable trenches going between or that held the control cables between those four breakers and the relay house, and the controls, would also be in scope, along with the cables in the trench.

MEMBER ROSEN: Now is this the time to talk about the open contention or is this just background for it?

MS. FRANOVICH: We can talk about that contention now. How about if you ask me what you need to know, what you would like to know, and I will try to answer it.

MEMBER ROSEN: I don't know if we have time before lunch. When do you want to take lunch?

CHAIRMAN BONACA: The schedule says 12:15, and so let's keep going.

MEMBER ROSEN: All right. The open contention is about whether there is power to the fans

in containment in the station blackout. Is that my understanding?

MS. FRANOVICH: Not exactly. The contention as it was originally framed was that Duke failed to consider information in the Sandia report addressing direct containment heating.

And the Sandia report has some -- I believe it is failure probabilities, or risk estimate, that the petitioner's felt were not used by Duke, and that these should have been used by Duke.

The question was should Duke have used the information in this report in developing its severe accident mitigation alternatives for license renewal, which is really in the environmental review portion of the staff's review, and not the safety review.

So that is the contention, but it is related to GSI-189, in that combustible gas control is the concern. If you don't have a means of mitigating hydrogen concentrations, then you are susceptible to large early failure of your containment.

So the GSI-189 issue is related, but that is a current operating issue that was not in the scope of license renewal. So we have really informed the petitioners that we are addressing that generically with the GSI.

It's not just a Catawba-McGuire specific issue. If you are interested in the status of the GSI-189, I really cannot speak to that. But we can make arrangements to have someone brief you.

MEMBER ROSEN: We are always interested in the status of GSIs, and particularly 189.

MS. FRANOVICH: Okay. Okay. Then we will take that back.

MEMBER ROSEN: They keep showing up and here it is again. If it only could get resolved way one or the other, then we could count on it in a lot of different ways.

MS. FRANOVICH: Yes.

MEMBER ROSEN: And on that resolution, whatever the Agency's resolution is.

MS. FRANOVICH: Yes, and I think Duke would like to speak to where they are in addressing the GSI. Bob Gill.

MR. GILL: Yes. This is Bob Gill again. The original environment reports that we put on last summer had the SAMA reviews. We used our plant specific PRAs, one from McGuire and one for Catawba, and came up with an initial conclusion that there were no cost beneficial plant modifications that met the criteria.

We received RAIs late last year and answered them, and several of them related to considering redoing the analysis considering certain values contained in the new reg, the Sandia new reg on the direct containment heating.

We did that, and we answered those RAIs in January, January 31st/February 1st, actually. In parallel with that, we had the contention going on that said that we should include the results in our environmental review.

By submitting the responses to the RAIs on the docket, we in fact supplemented or augmented our original environmental review. The staff subsequently in the May time period issued the draft supplement EIS's, one from McGuire and one from Catawba.

And concluded that there may be cost beneficial modifications, SAMAs, to address this issue under certain assumptions. And the assumptions have to do with core damage frequency, and containment failure probability, and a number of things.

We even provided some additional information on potential modifications, and what they would cost in doing that. So subsequently, and I forget exactly when we did it, but I think it was July or August, we responded and commented on the draft

SEIS's and provided some additional information to the staff.

And they are in the process now of collecting all the comments that were received, and we will issue the final SEISs in the January time period, I believe, is what is scheduled. In parallel with that, Duke's -- each site sent in a letter committing to monitor, and follow, and support the staff's effort in the research of GSI-189.

As a footnote, I will put another commitment we put in on Catawba, was that one of the contributors to lost off-site power was flooding of some switch gear in the basement of Catawba, and we committed in a separate letter there to go ahead and put in a flood wall at Catawba to reduce the frequency of that event from occurring.

So in parallel, and the letters were signed specifically by the site vice presidents as commitments to do work. So those went in and those are really a Part 50 issue.

Subsequent to that, we contacted research and offered to provide any assistance we could in more PRA numbers, sensitivity studies, uncertainty values, estimates of modifications that they might be interested in.

And we have provided that to them, and that should be in the package that you all are receiving very shortly here. We understand that the staff is going to provide something soon, and you all are to discuss it next month, I believe.

And we are very interested in assisting as we move forward and refining what the real cost benefits are, and what the rage might be, and the various assumptions, and also what the potential plant modifications might be in this area.

And in fact I had the opportunity to go to Catawba and do a brain storming session to kind of figure out what the costs might be for a particular MOD of cross-connecting one unit to the other as a backup.

And the particular scenario that we are talking about is extending the station blackout well beyond the four hours, and you would have no AC power, and you have to provide power. And we believe that you need power to the fans, as well as the igniters, and of course that changes the costs associated if you bring in a new power source.

But if you are able to cross-connect from one unit to the other, you don't need to worry about the power source, because you are just going from

Train A of Unit 2 to Train A of Unit 1.

MEMBER ROSEN: So your igniters and fans will work even under those circumstances?

MR. GILL: Yes, sir. And we did provide that cost estimate, and not only just providing power to the fans. There is some dampers that have to be repositioned, and igniters, and then we provided subsequently a cost estimate just with providing power to the igniters.

So again you have a range of SAMA, of costs,a nd then there will be a range of a varied cost benefits, and the question is going to be where do they overlap.

And I think that the package that you will be getting shortly, if you haven't already received it, will be or would have all of that in there hopefully.

MEMBER POWERS: Will the package that we receive describe this flood wall?

MR. GILL: Excuse me, sir?

MEMBER POWERS: Will the package that you are talking about describe this flood wall?

MR. GILL: I don't think so.

MEMBER POWERS: I would be interested if you have any information on it.

MS. FRANOVICH: I have a copy.

MR. GILL: It is just a concrete wall.

MS. FRANOVICH: I have a copy of the letter from Gary Peterson, and I can provide that to you now.

MEMBER POWERS: I would like to see that.

MR. GILL: The letter describes it briefly. It is just a wall around this to prevent damage and it is a relatively simple modification.

MEMBER POWERS: My interest has nothing to do with the generic issue, or the license renewal. It has to do with the potential for a MOX application.

MR. GILL: Yes, sir, and we appreciate that.

MEMBER ROSEN: Well, I think that is a very comprehensive answer. I think Duke, and Mr. Gill, and Mr. Robison, for that. It is very helpful, and understand that we are involved very passionately in these issues, the GSIs, and then they keep popping up in licensing actions that come before us, and there are matters that are related to it.

And it is hard to separate our interests from one topic to another. They are always overlapping, and integrated, and so I think what you have said now importantly is that the issue is getting

some real engineering review, at least in the context of these particular plants, ice condenser plants, and we will have some resolution.

So for the point, Mario, the present matter in front of us, I think we can -- I feel comfortable in saying that the open contention on severe accident mitigation analysis on station blackouts will get resolved in due course appropriately, and the related matters that we just discussed will as well.

CHAIRMAN BONACA: That's right, and clearly it is a core license issue, and --

MEMBER ROSEN: And not specifically a license renewal issue for these plants.

CHAIRMAN BONACA: Very good. Yes.

MS. FRANOVICH: Okay. I have this off-site power path characterized as a confirmatory item because we have asked the applicant to provide a simplified line diagram. This is hand-drawn by the staff based on its understanding.

But we are waiting for a simplified line drawing from the applicant to characterize as a resolved item. One of the things that we found in the AMR results provided for the structures and components that were brought in from the off-site power path is

that some of them are concrete structures that are the subject of an existing open item and that these just fall in as additional examples of that open item.

And we will talk about that open item when we talk about aging management review results for structures.

MEMBER ROSEN: Now, the thing that you just mentioned about waiting for a line item simplified diagram from the applicant, goes back to this question of site points of contact, and the long term preservation of knowledge base that would be necessary to make sure that Duke is able to implement the commitments that they make.

It seems to me that Duke would want to carefully and not just hand you back an envelope, or a napkin, and say here is what it really looks like, a drawing. You would want to do an engineering drawing of this, and put it in the docket not just for the staff's purposes, but for your own purposes within the plant so that you can be sure that you treat all this stuff, and get it properly scoped to make sure that your document is correct.

MS. FRANOVICH: And in all fairness to Duke, when we met with them several weeks ago, they brought beautiful, large diagrams of the electrical

distribution and highlighted those things that are now in scope for the staff.

The staff is asking for the simplified line diagrams so that the staff's understanding of this power path is transparent to the public. We want to make sure that public confidence is addressed, and it is not in their response, and it may not be clear to the public, and they didn't have access to the drawings that we saw in the meeting.

MEMBER ROSEN: Very good clarification. That's a great reason to go to simplified drawings, but I was worried about the other piece of it, which is that in the other plant, and not in the public, but making sure that the commitments are followed, it takes a level of engineering accuracy and drawing that is different from a --

MR. ROBISON: Just to add, Steve, we have in the electrical area also a specification. We have structural specs for license renewal, and we call them license renewal basis documents, where all of this level of detail is captured.

So that way it doesn't get lost somehow in the correspondence files. I mean, these are easily retrievable document controlled type engineering work. So just for that very reason, so that the

specifications are clear.

MEMBER ROSEN: Good.

MS. FRANOVICH: Okay. Next slide.

DR, LEITCH: Before you leave this scoping area, I had a question about the raw water supply to these two plants. I guess we have heard that one of the plants seems to have a problem with silting.

I guess my question really is, or I guess as I understand it, these are both lake-fed plant plants, and where do the circulating water pumps take suction from, and where do the service water pumps take suction from?

Could we hear a little description of just what is the ultimate heat sync in each case?

MS. FRANOVICH: Sure. I will take a stab at this, and Duke can keep me straight if I need to be corrected. The nuclear service water system is the ultimate heat sync for both McGuire and Catawba. The standby or nuclear -- standby nuclear service water pond is the seismically assured source for the nuclear service water system.

The condenser circulating water pump at Catawba, I know, are beside the turbine building, and right outside the condenser, and the cooling towers are out in the yard several hundred feet away.

There is raw water going through these systems, and they do have a silting problem. One of the things that they are required to address for license renewal is fouling and heat transfer loss as a result of that aging effect for those SSCs that are within the scope of license renewal, which would involve the nuclear service water system, and with that, I will turn it over to Duke to see if I did not cover something that they would like to speak to.

DR, LEITCH: I guess my question is that pond from which those nuclear service water pumps draw sucking, how do we monitor that it has the required volume?

MS. FRANOVICH: Volume? That is a TLAA, a time limited aging analysis that we are going to cover when we address Chapter 4 of our SER.

DR, LEITCH: Okay.

MS. FRANOVICH: So can we address it then?

DR, LEITCH: Sure.

MS. FRANOVICH: Okay.

DR, LEITCH: Now, does one of these plants have a greater silting problem than the other, and if so, why?

MR. ROBISON: Lake Wiley is downstream from Lake Nolan, but Lake Wiley is also a major

dumping ground for a lot of steams from the City of Charlotte, and plus their sanitary.

So the lake is a very poor quality water compared to Lake Nolan, which is of much higher quality water.

DR, LEITCH: And Wiley is associated with which plant?

MS. FRANOVICH: Catawba.

MR. ROBISON: Catawba. A lot more suspended solids, and clay, and other debris in Lake Wiley; and it is also a much shallower lake, and it has not had as much time to settle out like it does at Lake Norman, and at McGuire, and so just in general the water quality is much poorer.

It has a higher level of suspended solids in the water, and to which again the plant just settles out in the piping and heat exchanges.

DR, LEITCH: And that sediment not only impacts the circulated water pumps, but is it also -- as I understand it, is there a separate reservoir from the nuclear service water pond?

MR. ROBISON: Yes, each site has a standby nuclear service water pond which they use in case they lose the lake at McGuire. And they have to monitor the ponds at Catawba because there is this higher

level of sediment in the water, and it settles out.

And as Rani said, they will talk about that later, and there is a TLA. They don't seen to have that problem at McGuire as such, because the water quality is just that much better.

DR, LEITCH: And is there any filtration, or any settling kind of process that takes place between the big lake and the pond from which the nuclear service water pond takes consumption, or is it basically the same water quality?

MR. ROBISON: At McGuire now the safety related nuclear service water system takes their suction directly off the condenser circulating water system, which is directly from the lake.

So there is no filtering process. Now, at Catawba, their condensing circulating water system is -- I hate to use the word treated, but there is some treatment done to it to take some out because it recirculates around and around.

But it is not like a filtering system that removes all of the stuff out of it.

DR, LEITCH: Okay. Thank you.

MS. FRANOVICH: Okay. We are running quite a bit behind schedule, and I would like to start on Chapter 3 if I may.

CHAIRMAN BONACA: Sure.

MS. FRANOVICH: And then we will take our lunch break after I complete the discussion of the ESFs.

CHAIRMAN BONACA: Good.

MS. FRANOVICH: Okay. The staff's review process for evaluating aging management programs involves following the standard review plan for license renewal, and that the staff is directed by the review guidance to evaluate 10 attributes of every program.

We have a number of conference calls with the applicant to address staff questions or concerns, and we also wrote a number of requests for additional information.

In the application, these numbers differ a little bit from what Greg indicated earlier, and Greg's numbers are probably more accurate because they didn't really characterize their programs as being existing, new, or augmenting the application.

But they had according to this slide 30 existing programs, 5 augmented programs, and 13 new. I think the numbers were different from Duke, but there were eight one-time inspections, and the one-time inspections credited by Duke were really not

intended to provide an indication of the effectiveness of an existing aging management program.

They are really credited to verify that an aging effect that they have not identified in their operating experience is not occurring, or if it is occurring, it is a very slow progressing phenomenon that does not require an aging management program.

So that is the intent of the one-time inspections that Duke proposes to manage aging.

CHAIRMAN BONACA: Yeah, I think you both agree on the number of new programs, but we will have an opportunity to ask questions as we go through them.

MS. FRANOVICH: Sure. The new aging management programs are indicated on this slide and the next slide. And with an asterisk, I have indicated those that are the one-time inspections.

CHAIRMAN BONACA: Go back to the previous slide. I was looking at the Alloy-600 aging management review. And there seems to be a new procedure for license renewal, and so the question I had was didn't you have already an Alloy-600 aging management program? I mean, today, being with Alloy-600?

MR. ROBISON: We don't have a comprehensive Alloy-600 program in place.

CHAIRMAN BONACA: Okay.

MR. ROBISON: What this is doing is taking in addition to the steam generator work, and in addition to the CRD end nozzles, it is taking a comprehensive view of all of the Alloy 600, and bringing it together, and understand the susceptibility, and then making sure that we properly and programmatically manage it from there.

This particular view was to get our arms around all of the 600 material, and then from there take the appropriate next steps.

CHAIRMAN BONACA: But it seems to me that you would want to use this program now, and not 20 years from now, because when I looked at it, it is significant, and it pulls together the other programs and it tries to inter-tie the activities that you have and it is very significant.

MR. ROBISON: You are correct, and in fact we are doing it now. And this is one of the definitional anomalies for license renewal. It is new for license renewal, and it was birthed somewhere here over the past year or so, as our industry issues began to get higher and higher visibility.

But in fact we have proceeded well on the way with this review, and are even beyond that have

begun to take other actions to add some things to the CRDM program, and all of that is happening in the Part 50 world right now, even in parallel with what we are doing with license renewal.

MEMBER FORD: Now, when you say you are going to add things to the current program that you have given Appendix B, I think it is, those are in addition to those which are being proposed by EPRI and the MRP program?

MR. ROBISON: I can't speak in detail to the whole MRP. We are actively involved in the MRP effort, and I know that the additional things that we are doing are in conjunction with all of the discussions, and we are very active in that work.

But I can't speak to the details of it.

MEMBER FORD: Okay.

MS. FRANOVICH: Okay. I will go on. This is slide two of the new aging management programs, and as I indicated earlier, the last program on this slide, the pressurizer spray head examination, is a new aging management program proposed by the applicant in response to a staff request for additional information.

Section 3 of our SER provides the staff's evaluation of all the common aging management programs

of which Greg has indicated there are quite a number, and this is just a list of those common aging management programs, or some of those aging management programs, and it is not comprehensive.

But a combination aging management program is in the aging management program that the applicant credited for more than one system. We have one open item still under Section 3.0, or the common aging management programs of the SER.

This open item pertains to the sample of small bore class one pipe that Duke proposes to inspect to ensure that cracking is effectively managed by the chemistry control program. The volumetric examination that Duke proposes to use as a risk-informed, involves a risk-informed sampling process, and we recognize that part of the risk-informed criteria is to look at those locations which will have a significant consequence in the event of a crack.

What the staff has tried to determine is whether or not susceptible locations are also part of the criteria used to risk inform one's sample.

CHAIRMAN BONACA: Is this a one-time inspection?

MS. FRANOVICH: No, this is an ongoing inspection.

CHAIRMAN BONACA: And that was reflecting on that one, and it seems to me that if you want to have a one time inspection, looking at a risk-informed approach is not appropriate. I mean, you want to look at the most susceptible area, because you are trying to find indications somewhere whether or not this is an issue.

MS. FRANOVICH: Correct.

CHAIRMAN BONACA: And if it is an issue, then you can use a risk-informed approach maybe.

MS. FRANOVICH: Correct.

CHAIRMAN BONACA: But first of all you want to ensure that. But I found that this is an actual program, and it is part of the in-service inspection plan.

MS. FRANOVICH: That's true, and I indicated that.

CHAIRMAN BONACA: And they do have routine inspection of small bore pipes.

MS. FRANOVICH: Right.

CHAIRMAN BONACA: So --

MS. FRANOVICH: Yes, and I indicated that they verify the effectiveness of the chemistry control program, and that is not incorrect. The truth is that they credit both of these programs for a lot of

components.

So this is not a one-time inspection, and they just credit a couple of on-going aging management programs for some of the components.

MEMBER ROSEN: Now, the staff's concern as to whether or not they look at piping, not just from the placement of piping failures that have consequence, but also piping failures that are likely in fact if there is an active degradation mechanism --

MS. FRANOVICH: Correct.

MEMBER ROSEN: -- of some kind understood to be present.

MS. FRANOVICH: Or locations that --

MEMBER ROSEN: I think that is a fundamental precept of the risk-informed ISI programs.

MS. FRANOVICH: It could be. We are trying to verify that, and we are trying to verify that the risk-informed approach does consider susceptible locations, as well as those yield the highest consequence.

And the staff is looking to make sure that certain phenomena, like penetration turbulence, and fatigue, are addressed by that risk-informed criterion. We have received some information from Duke and we are evaluating it, and we just need to be

sure.

CHAIRMAN BONACA: We have to look at the positive aspect as to whether they have a visible examination in the program, and some other plants don't have it. So this is a good initiative on the part of Duke.

MS. FRANOVICH: Yes, the staff would agree with that.

CHAIRMAN BONACA: But certainly there is still the issue of susceptibility to be clear.

MS. FRANOVICH: Right.

CHAIRMAN BONACA: And maybe -- and I know that other plants just simply identified some of the more susceptible locations and said why don't you just look there, you know. So that could be a minimum commitment from the staff.

MS. FRANOVICH: Right. And my understanding from the staff is that for Oconee, what Duke proposed is a volumetric examination of small bore class one pipe, but Oconee provided what they would propose as a representative sample based on some of those worst case conditions.

And that the staff found that to be acceptable. For this, they have just proposed the Westinghouse endorsed risk-informed process, and we

just want to make sure we understand the underlying tenants of that process. So the remaining items --

DR, LEITCH: Excuse me, but I thought the open issue concerning class one small bore piping also related to the method of examination. as well as what was to be examined.

MS. FRANOVICH: You are absolutely right, and in the SER, as it was originally written, that was a question that the staff had, and the staff has since gotten clarification from the applicant that they do propose volumetric examination.

DR, LEITCH: All right. Thank you.

MS. FRANOVICH: So we have six confirmatory items, and three have to do with SR supplements that we are looking for some updated information, additional detail, governing tech spec standards or guidelines. And the other three have to do with information that the staff requested the applicant to provide on weld material for their reactor coolant system piping, and their actions to address the operating experience at V.C. Summer.

And the applicant has provided that information. We characterized the weld cracking issue as a current operating issue, and is really quite beyond the scope of licensing renewal.

However, it does involve aging effects that are addressed in the staff's review process. But we are relying on the current Part 50 process to resolve the issue as it pertains, particularly to plants in the industry that have field welds, such as I believe are Harris in North Carolina, the Harris plant, and is susceptible to the V.C. Summer event.

And with respect to the heat exchange or PM acceptance criteria, the applicant has provided some codes and standards that they will reference in their program, and in the SR supplements that will help guide them in determining what the acceptance criteria will be.

The staff has confidence in that, and for the service water piping corrosion program, and this is something that the committee was interested in during the North Anna and Surry license renewal presentation, the staff has accepted two kinds of programs.

One is where the applicant proposes to excavate buried piping and components, and perform a visual inspection of the external surface to ensure that the coating is not degraded, and the underlying piping is not degraded.

For Oconee what Duke proposed was a visual

inspection of the internal surface of very large diameter piping associated with the condenser circulating water system, and they would identify signs of degradation of the external surface through blistering of the coating, or signs of wetting of the internal surface, and they would use that as an indication of the condition of the external piping surface.

MEMBER ROSEN: Wait a minute. You said signs of wetting of the internal surface. Oh, when it is dry you mean?

MS. FRANOVICH: Correct, when it is drained and somebody is actually standing in it looking around.

CHAIRMAN BONACA: Yes, then it goes through.

MS. FRANOVICH: And the sample size that they proposed at Oconee was, I believe, 80 percent of the buried piping that was credited by this particular aging management program. For Catawba and McGuire, Duke is proposing the same program, except the sample sizes is around 90 percent of the population of piping and components credited by this program.

And the staff feels that that is adequate, and that it avoids unnecessary risks to the buried

components and piping if you excavate it just to do this inspection.

And for the codings susceptible locations are really hard to predict because presumably your coating is in good shape when you install it, and it is only those areas that have nicks that are going to be susceptible.

And you wouldn't know what those areas are at this point in time.

CHAIRMAN BONACA: Although, I mean, for the programs that they are committed to an external inspection, typically wasn't that they would just go after it.

MS. FRANOVICH: That's right.

CHAIRMAN BONACA: You know, just when the opportunity comes, and that they would essentially excavate that particular area.

MS. FRANOVICH: That's correct.

CHAIRMAN BONACA: And so it was not really a burden on the licensee in the sense that they did not have to say, oh, today is the day that we have to go and dig.

MS. FRANOVICH: Although I believe for North Anna and Surry they did commit to the staff, because the staff was concerned that you may not have

an opportunity to really do a representative sampling.

And I believe for North Anna and Surry, and I could be wrong, that they committed to ensuring that before the extended period of operation that they would have a representative sample of buried piping, and that they would have had an opportunity to look at. And if not, they would go and proactively look at it.

CHAIRMAN BONACA: And the reason that this was an open item, and your concern or the concern of the staff, was that you may have significant pitting in an area and that under normal conditions that you would just expect to find your problem under design basis condition for the failure.

MS. FRANOVICH: That's right, and that is for the nuclear service water piping program.

CHAIRMAN BONACA: That's right, and that is open that way.

MS. FRANOVICH: Correct. Correct. For that one, that is not resolved, and in fact I think I may have been confusing the result item, which is the condenser circulating water internal coating inspection with the one that you just mentioned.

For the service water piping corrosion program, what we are looking for from the applicant,

and I believe they provided this in their October response, or October 2nd response to the SER, and it is an interim letter, is that UT will be credited for identifying those areas where you have significant pitting before loss of intended function could be precipitated after a design basis event.

So the staff found that to be acceptable and that is now a confirmatory item. But you are right. That's why we opened that item, and at first the applicant appeared to be crediting leakage detection, where they would visually identify leakage from the pitting corrosion.

And the staff was concerned that that was not proactive enough, and I think what Duke has come back with is when we identify signs of leakage, we are going to do a UT do determine the extent of condition and take corrective actions as needed.

CHAIRMAN BONACA: So you don't have a broader area?

MS. FRANOVICH: So you don't have a broader area where you have a structural integrity concern.

CHAIRMAN BONACA: I would almost be like a leak before break?

MS. FRANOVICH: Yes, I guess.

CHAIRMAN BONACA: Because you identify it as an early time. And how frequently do you have to make your inspections?

MR. ROBISON: the program that Rani is describing, we do sample points each outage.

CHAIRMAN BONACA: Okay.

MR. ROBISON: So the program has a sample set defined and frequencies for the samples that are done, and we do so many per outage. This is a perpetual program that will go on.

CHAIRMAN BONACA: Okay. That's good. Thank you.

MS. FRANOVICH: Sure. And that is all of the open items for the aging management program.

CHAIRMAN BONACA: Before we move forward -- oh, I'm sorry, go ahead.

DR, LEITCH: I was just a little confused by the last bullet there if you were going to move on, the condenser circulating motor internal coating inspection.

I thought there was an issue with regard to the external inspection of the circulating water pipe.

MS. FRANOVICH: Correct. This open item was identified during the review and concurrence phase

of the SER's issuance. And there were certain staff who were concerned that -- and in fact management -- that we were applying our determination of what was acceptable inconsistently across the plants.

So we wanted to make sure that we were treating this aging management program consistent with previously determined acceptabilities. And what we found was that indeed we had credited this, or we had accepted this program for Oconee.

We wanted to make sure that the same sample size was going to be used or better for Catawba and McGuire.

And once we were confident that the program was as good or better than what was proposed for Iconee, we decided to resolve this item without any additional information from Catawba from Duke. So we opened it up conservatively to make sure that we were being consistent, and then found that we were being consistent.

DR, LEITCH: I am still a little confused. Are we requiring external inspection of the circulating water pipe?

MS. FRANOVICH: No.

CHAIRMAN BONACA: Before we move forward, in the previous slide, you were talking about reactor

vessel internal inspections, and I wanted to ask a question about that. Those inspections are for, I believe cask components, and identification of critical crack size, and acceptance criteria, and I think that was an open item. I believe that has been closed? I don't know, but anyway the other thing was, of course, for swelling, void swelling.

MS. FRANOVICH: Void swelling, right.

CHAIRMAN BONACA: And I was looking at the program, and then it seems to me that it talks about all these inspections. But then when you come down to it, really the inspection is being done at Oconee. So we are still crediting the Oconee-1 inspection for crediting it for six plants, or for seven plants.

MS. FRANOVICH: Right.

CHAIRMAN BONACA: And the first question that comes to mind is why Oconee-1 representative of all these kinds of plants? I could understand it for the void swelling where Oconee may be ahead of the plant than McGuire or Catawba, but I don't know. I would like to know if that is the case.

I mean, there are different manufacturers, and different components, and maybe different materials. There is no explanation anywhere of why Oconee-1 inspections of internals would be applicable

to all these other units.

MS. FRANOVICH: The staff had the same concerns, and when we met with representatives from Duke in September, we found a path to resolution on this item, and the path was that they were going to do an examination of the McGuire-1 internals at or around year 40, and then do another examination of the McGuire-2 internals at or around year 50.

And they provided some basis for why at McGuire there were some design differences that caused stresses that exceeded stresses that one would be exposed to, whether the internals were exposed to at Catawba, McGuire 1 and 2, who have operated for longer.

So the staff is characterizing this as a confirmatory item. There will be more discussion of this when we talk about the AMR results for reactor coolant systems in a few minutes here. But in short that is my understanding of how we have resolved that open item.

CHAIRMAN BONACA: Okay. So that's why I wanted to go back to the issue of a sell point, and to have a location where all these modification changes and responses are documented so we can understand what the comprehensive program is, you know.

MS. FRANOVICH: Right.

CHAIRMAN BONACA: I have all of the program descriptions and problems that they had, and this information is all there.

MS. FRANOVICH: Right. And when we resolve an open item for an aging management program, one of the things that accompanies that resolution is an update to the SR supplement, which will be the SR description of that program once the license renewal project is over.

So that is the mechanism by which we ensure that these changes are captured in their licensing basis documents.

CHAIRMAN BONACA: Okay. I would like to invite Jim Medoff of the staff to the table to present the staff's results of its evaluation for Section 3.1.

CHAIRMAN BONACA: And then, Rani, you will give us --

(Whereupon, at 12:30 p.m., a luncheon recess was taken until 1:32 p.m.)

CHAIRMAN BONACA: All right. Let's resume the meeting now, and starting again with Chapter 3, AMR Results.

MS. FRANOVICH: Okay. For Chapter 3, and this is the same process that the Staff used for all

the sections in Chapter 3, the Staff reviewed the materials, the environments and the aging affects. The Staff was looking for whether or not all applicable aging affects were identified, and whether or not the aging affects listed were appropriate for the materials and environments that were listed in the application. And the Staff was seeking to, with reasonable assurance, conclude that intended functions will be maintained consistent with the CLB in the renewal period. And that's essentially the focus of the Staff's review for the AMR results on Chapter 3 of the license renewal application. And with that, I'm going to turn my presentation over to Mr. Jim Medoff, who is the Lead Reviewer for Section 3.1 of the license renewal application. Jim.

MR. MEDOFF: Good afternoon, ACRS Members and Members of Duke Power, and members of the public, and fellow Staff Members. My name is Jim Medoff. I'm Materials Engineer with the Materials and Chemical Engineering Branch of NRR. I was the Lead Reviewer for the Aging Management Reviews of the reactor coolant system. That included appropriate reviews of time limiting aging analyses for the reactor vessels, as well as reviews of appropriate Aging Management Programs that were accredited for managing aging

affects that were identified for the components of the RCS.

The scope of my review included the Class 1 piping pumps and valves, including supports and nozzles, and applicable safe-ends, pressurizers and their sub-components, the reactor vessel in the CRDM pressure boundary, including the CRDM housings, as well as the CRDM nozzles to the reactor vessel, the reactor vessel internal components, and the steam generators.

For the reviews of the steam generators, I'd like to identify the left-hand side of the table, Mr. John Tsao, who is the Lead Reviewer for the steam generator ARMs and Aging Management Programs. And he will answer any questions that you may have to do with the Aging Management Reviews and Aging Management Programs for the steam generators.

In review of the reactor coolant system, we really evaluated each sub-system separately, but since the materials and environments are pretty much similar across the board, we're going to discuss them pretty much as a commodity group here.

Included in our review was appropriate industry documentation, NRC guidelines. Included in these were the standard review plan for license

renewal, appropriate staff NUREG reports, regulatory guides, application information notices, generic letters and bulletins in summary of critical events whose impact we needed to assess in relation to the license renewal application, as well as branch technical positions and interim staff guidelines issued by the license renewal branch.

For the RCS components, the materials are mainly Carbon Steel, Stainless Steel, including Cast Austenitic Stainless Steel materials, as well as some Precipitation-Hardened Stainless Steels for bolding, as well as Inconel Alloys, and specifically Alloy 600, and Alloy 82/182 filler metal materials.

The applicable environments for the RCS were the borated reactor coolant, reactor building air, and as well as steam for the pressurizers. We basically evaluated the materials under each environment that was applicable to them, and identified the aging affects that were applicable to these materials.

Collectively, there were five main aging affects associated with these materials, cracking. A number of mechanism can cause that, including fatigue and stress corrosion, loss of material. Primary mechanisms are general corrosion, pitting, crevice

corrosion, wear, as well as potential wastage from Boric Acid leaks, reduction of fracture toughness to main mechanisms, thermal aging of casks and precipitation-hardened steels, as well as for the reactor vessel materials and reactor vessels internals potential loss of fracture toughness due to irradiation embrittlement.

MEMBER LEITCH: Jim, there's one section here. It's on page 3-88, where the licensee describes a problem with loss of fracture toughness had an applicable affect only for McGuire Unit 1 primary nozzle, one particular elbow. Why is that? Is that elbow of a different material?

MR. MEDOFF: The McGuire cold leg elbow is a cask component. Basically, the Staff has provided the industry with interim Staff guidance on cask materials, and specifically whether the cask materials are -- the Staff considers them to be subject to thermal aging. There are certain parameters that go into these that may or may not affect the susceptibility of thermal aging, including the Molybdenum content, the Ferrite content of the material, as well as the fabrication method for casting materials, and specifically whether the material has been statically cast or centrifugally

cast. And we performed our review of the cast materials based on the interim Staff guidelines that the Staff issued to the industry.

MEMBER LEITCH: So the other three nozzles, the elbows on the other three use the same relative elbows, are not cast, or they're not statically cast?

MR. MEDOFF: In Chapter 3.0 of the application, the applicant clearly identified its method for determining whether a given cast material is subject to thermal aging. With regard to the cast materials, it identified the cold leg elbow as meeting the threshold for thermal embrittlement. The CRDM latch housing did not meet the threshold for thermal embrittlement in accordance with the guidelines, so we didn't really have any basis for questioning that, and telling the applicant that they didn't have a valid basis. So since the applicant was using the interim Staff guidelines to evaluate the cast materials, we basically took their description in the application on face value, because they used interim Staff guidelines.

MEMBER LEITCH: But the same relative elbow on the other three units, is it -- this just happened to be the most limiting one?

MR. MEDOFF: No. It has to do with the Ferrite content during fabrication, so in their -- in fact --

MEMBER LEITCH: On page 3-90, it describes this as being statically cast, and contains Niobium. I don't know if that's what makes the difference or not.

MR. MEDOFF: Bear with me for one second, please.

MEMBER LEITCH: Sure.

MR. MEDOFF: Okay. If you look on page 3.1.2 and 3.1.3 of the license renewal application, not the SER --

MEMBER LEITCH: Okay. I'm sorry. Give me those page numbers again.

MR. MEDOFF: 3.1-2 and 3.1-3 of the application. The applicant clearly defines what they used for determining whether thermal embrittlement was applicable for the cast materials.

MEMBER LEITCH: Okay.

MR. MEDOFF: Okay. So our SER was based on those pages of the application. And because the applicant did a very good job of defining their process for either determining a given component was susceptible, for eliminating it from the

susceptibility criteria, we didn't have any real reason to question them on the identification of cast materials.

MEMBER LEITCH: Very good. Thank you.

CHAIRMAN BONACA: Now this is susceptible material. I mean, that's the --

MR. MEDOFF: Right.

CHAIRMAN BONACA: And they are committing to a VT-1 at the 10 years. Why is it adequate? I'm sorry. Yeah. They are committing to VT-1 every 10 years, and to a VT-2 ever outage.

MR. MEDOFF: Right.

CHAIRMAN BONACA: VT-2 is really a leakage.

MR. MEDOFF: Right.

CHAIRMAN BONACA: So VT-1, it's the only visual, you know, detailed visual of the welds.

MR. MEDOFF: Well, I --

CHAIRMAN BONACA: Why so -- I mean, if it is susceptible --

MR. MEDOFF: I think that is accordance with the current Section 11 criteria that they proposed that.

MS. FRANOVICH: We're kind of getting ahead of Jim's presentation. Do you want to go back

and address what the Aging Management Programs are, Jim? We're kind of still on this slide.

CHAIRMAN BONACA: I thought this was the right time to ask.

MR. MEDOFF: No, I'm prepared to address that. Based on the criteria for the examinations of the elbow, we didn't see any basis to challenge them, since they were meeting the Section 11 rules.

CHAIRMAN BONACA: So essentially, the causation would be that you do a visual at every outage.

MR. MEDOFF: Right. That's for leakage.

CHAIRMAN BONACA: And that should give you sufficient warning --

MR. MEDOFF: Right.

CHAIRMAN BONACA: -- if you do have a problem, develop a problem.

MR. MEDOFF: Right.

CHAIRMAN BONACA: And then every 10 years --

MR. MEDOFF: And the VT-1s are to detect surface cracks. We concluded that that combination of visual examinations provided us with reasonable assurance for detecting cracks in the elbows.

MEMBER FORD: Jim, maybe I'm jumping ahead

of the gun here too. All of these aging affects are covered in the current Aging Management Programs, many of which are industry, or most of them are industry derived, and most of them have been approved to a certain extent by the NRC already. So the presumption is, therefore, that right now we are managing these aging problems.

However, the plant is going to go into operation into the license-renewal period about 20 years from now. If you look at all the current managing programs, they are reactive. They were based on things that have occurred in the past, and now you're trying to manage them now. There are many things that have occurred, however, like CRDM housing cracking, cracking of replacement materials that might be used for CRDM in 6/1982 - 52 rather. Sorry, 1952, which will occur undoubtedly in the future.

What recourse does the NRC have to come back and say hey, not good enough. WE've got to do yeah, yeah, yeah, in the license-renewal period.

MR. BATEMAN: This is Bill Bateman, Division of Engineering. The answer to that question is we followed the processes that we're following right now. If we have an issue that comes up and it rises to the threshold of issuing a bulletin to try

and determine additional information in order to make some regulatory decisions, then that's what we'll do. The process in the license-renewal term will remain the same as it is right now for those types of issues that we had not expected to occur.

CHAIRMAN BONACA: So what you're saying, for example, the CRDM cracking is an example of how you just are implementing the requirements based on the new experience.

MR. BATEMAN: Yes.

CHAIRMAN BONACA: And I think you'll do the same when applying for license-renewal, even though that degradation mechanism is not yet recognized.

MR. BATEMAN: Exactly. I don't anticipate there's going to be any change in how we do business in terms of regulating licensees in the current period, as opposed to the license-renewal period. We use our same processes.

MR. KUO: Well, once they are in the renewal period, the current regulatory process will be carried forward into license-renewal period, so whatever the process, just like Bill said, is doing now, what we are doing now, we'll be doing later in the renewal period. That's the regulatory process,

you know, that we carried forward.

In addition to that, I also want to mention that when the Staff reviews the Aging Management Program, although there are existing programs today, all the programs are subject to our ten attributes of the evaluation. That includes the scope, the detection of aging, the mitigation and all that, so when you see this -- that existing programs are being used, in our sense of license-renewal Aging Management Program, it is not only reactive. It is also proactive.

MR. MEDOFF: And that's pretty much what I was just going to tell you.

MEMBER ROSEN: Word for word.

MR. MEDOFF: I guess we can go onto Aging Management Programs that were used to manage the affects that I've identified on the previous slide. Collectively, the applicant used a group of -- a combination of common Aging Programs which Rani talked about before, which are Aging Management Programs that are common to more than one system in the plant, as well as some system-specific Aging Management Programs to manage the affects that I've talked about previously.

MEMBER FORD: I'm sorry. My brain has

been going since Bill's -- the only one that we need to be concerned about would be one time inspections. Therefore, even if we -- you're still going to be reactive. If something fails in the system between now and 20 years, which you said, the licensee said that they're going to do a one-time inspection, if by their engineering judgment only inspect it once, if it does fail, then that's all, obviously, null and void. This is coming to a new --

MS. FRANOVICH: Let me address that. The intent of the one-time inspections for Duke, in particular, is to either verify that aging affects, their operating experience indicates they don't have are not occurring, or they're occurring at a very slow progressing phenomenon. If their one-time inspection program, before they even do their inspection, if there is some operating experience that indicates that there is an aging affect based on some event, some equipment failure, then their one-time inspection will lead to additional inspections, because they will have evidence that there is an aging affect that they need to monitor and trend.

MEMBER FORD: So it becomes null and void.

MS. FRANOVICH: Right.

MEMBER FORD: It's no longer applicable.

MS. FRANOVICH: They may come up with a whole new inspection program to address that aging affect. The scope of the program will be defined at that point in time. Frequency of inspections will be determined, so the one time inspections are not a stagnant entity. Based on the results of the one-time inspections, or if they have indications before they perform the inspections, that there are aging affects that need to be monitored, they will take actions to do that. Does that answer your question?

MEMBER FORD: Yes, it does. Thank you.

MS. FRANOVICH: Sure.

MR. MEDOFF: The four common aging affects that were pretty much common to the RCS sub-systems were the Chemistry Control Program. They credit that program a lot for their RCS, for managing affects in their RCS sub-systems. The in-service inspection plan, the fluid leak monitoring program, which actually includes monitoring for potential wastage that may result from potential leaks of the reactor coolant onto Ferritic or low alloy components, and the flow assisted corrosion program for some of the steam generator components.

The next slide provides the majority of the RCS specific AMPs that they've credited, as well.

Not listed here is the RCS Operational Leakage Program, but they did credit that as one of the programs, RCS-specific programs.

I want to clarify a couple of things, and actually one of the things I want to clarify is that with regard to the Alloy 600 review, during our review of the AMPs, the applicant did not provide the ten attributes for the question. We did ask an RAI on this, and what the applicant clarified is that this is not an inspection-based program. What the applicant does is they use the review, they use the Alloy 600 review to look at all Inconel locations in the RCS. They do a susceptibility ranking of those components, and then they use the results of the review to determine whether they need to augment inspection-based programs that they credit for managing cracking in the Alloy 600 components, or the other Inconel components.

CHAIRMAN BONACA: You should add the thermal fatigue management program. Right? That's part of the -- well, it's not RCS-specific.

MS. FRANOVICH: It's really a TLAA. We'll talk about that.

CHAIRMAN BONACA: But that's a problem. Right?

MS. FRANOVICH: It really is -- it's a hybrid.

CHAIRMAN BONACA: A couple of questions I have on this. One is, on the thimble tube inspection program, you do have that bottom-mounted instrumentation program, and I don't remember the frequency of inspections on that one. Five years, I think. Is it five years? I think it's five years. Well, anyway, when I was reading it, it speaks about the fact that there is a program right now, that there is a Westinghouse-recommended program, that leaves those thimble tubes in service with up to 80 percent wear, and I was surprised. I mean, is it a typo? Is it correct? Twenty percent residual thickness is sufficient?

MR. MEDOFF: That's correct.

CHAIRMAN BONACA: Okay. I thought it was a typo, maybe, but it's not.

MEMBER POWERS: You were just hoping that it was.

MR. MEDOFF: I would have to check.

CHAIRMAN BONACA: That is robust.

MS. FRANOVICH: Mary, can you help us with the answer to his first question on the frequency of this AMP?

MS. HAZELTINE: The frequency for this AMP is based -- what they do is, when they do the inspection, there is a calculation that they go through in order to determine how long they can operate until they need to do the next inspection, so the frequency is actually based on inspection results that we see.

CHAIRMAN BONACA: Okay. What has been the experience with the thimble tubes at McGuire and Catawba? Do you have any replacement of these thimble tubes?

MS. HAZELTINE: No, there has not been replacement, and I think what they see is, as they operate they degrade to a certain point, and then the degradation stops, which I guess you would expect with a vibration-type wear. We have a few thimble tubes plugged at each site. I couldn't specifically call them out, but some are plugged due to wear, and some are plugged due to other things. I think they got something stuck in one of them when they were doing an inspection, that type of thing.

CHAIRMAN BONACA: So the strategy is to plug them as long as you can. I mean, I'm sure you have a limit to how many you can plug.

MS. HAZELTINE: Yes. There's a tech spec

limit, I believe.

CHAIRMAN BONACA: Yeah.

MEMBER ROSEN: But isn't it true that those thimbles can be replaced?

MS. HAZELTINE: I believe that they can be replaced, and that they have actually been replaced at some other units, but we currently are not looking at doing that at McGuire and Catawba.

MEMBER ROSEN: But strictly speaking then, if they're replaceable, then they shouldn't be the subject of --

MS. FRANOVICH: But the applicant would have to demonstrate that they plan to replace them. If they don't plan to replace them on a specified life or based on performance, or condition monitoring, then they're within the scope of license renewal, and subject to an Aging Management Review.

CHAIRMAN BONACA: The other question I had was relating to an open item that you had, and maybe have closed. The one about V.C. Summers, Lessons Learned, implementation of those. Have you received closure on that?

MS. FRANOVICH: Yes, we have. What we asked for in the SER was the weld material in their reactor coolant system piping. We were looking for

the locations that contain 82/182 weld material, and we also wanted them to tell us what efforts, or what actions they have taken in response to the industry operating experience of V.C. Summers. They provided four locations that have the Alloy 82/182 material. They reference the pages of the application, Aging Management Review results table, that those locations are specified in. And in those locations, they credit the Alloy 600 Aging Management Review, and several other Aging Management Programs, I believe the ISI Plan. And they indicated what industry initiatives Duke is participating in, and that was sufficient for the Staff to consider this item closed.

I indicated earlier this morning that the Staff considers this a current operating issue, and because field welds were part of the root cause of this event at V.C. Summers, and the Sherron Harris Plant is the only other plant known to the Staff to have field welds, then the Staff has confidence that the Aging Management of these weld locations for McGuire and Catawba are adequate.

CHAIRMAN BONACA: My concern was more, as I had pressed at a previous -- at another meeting, more about -- and we discussed this down at Region 2. They expressed the same concern about the fact that

the previous inspections, the in-service inspections don't identify any indication of cracking in these welds. And yet, after they had this through-wall leak, then they went back and they found that they, in fact, had cracks in all the other nozzles.

MS. FRANOVICH: Right.

CHAIRMAN BONACA: Which says, you know, it's a failure of the inspection system. So now that was attributed possibly to the roughness in those locations, and the fact that, I guess the small tray that is moved over with a probe may have missed contact, and so on and so forth. But that raises the question about what is the industry going to do with future inspection? If those are the lessons learned, how are they being applied in such a way that we're going to see cracks now through volumetric inspection, rather than just simply waiting for a leak to come through.

MR. BATEMAN: This is Bill Bateman of the Staff. Industry was very sensitive to that Summer event, and subsequent to then, they've improved their NDE techniques. They've gone to smaller-diameter transducers, which would have a tendency to help overcome the roughness issue. And they've also employed eddy current techniques, so they've got

improved inspection. They've made significant improvements to their inspection techniques in an attempt to eliminate the possibility that they'll miss a crack like that.

CHAIRMAN BONACA: So the eddy current, for example, now it's routinely done?

MR. BATEMAN: The eddy current now is on the inspection devices, and that would pick up any surface flaws.

CHAIRMAN BONACA: Okay. Thank you. All right. That's good to know. I mean, we asked the question before, and we didn't get an answer, so thank you.

MEMBER LEITCH: I'm sorry. Does that answer apply to V.C. Summer, or is that all --

MR. BATEMAN: Well, that didn't apply to V.C. Summer before.

MEMBER LEITCH: No, but it does now. Right?

MR. BATEMAN: Well, I don't even think they inspected that weld this last outage. They didn't have a -- with the new weld, I don't think they had any requirement to inspect a new weld.

CHAIRMAN BONACA: But they have committed to inspecting the other nozzles, however, every

outage. So I would expect that --

MR. BATEMAN: That's my understanding, that they've improved the inspection techniques to smaller transducers and eddy current devices. If the licensees know something different, in terms of their inspection experience, that might be useful. Is that consistent with what you folks do?

MS. HAZELTINE: I can't add anything to that.

MR. BATEMAN: Okay. Well, that's what we were told by industry in a number of different forums, that that's what they've done. Because certainly, we were very concerned about what improvements they were going to make in subsequent inspections at all plants to be sure this was not going to happen again.

MEMBER LEITCH: Okay. Thanks.

MR. MEDOFF: The RCS-specific AMPs are -- there's a new one. The pressurizer spray head that Rani briefly touched on before, this is a one-time inspection program. Basically determined that cracking is not an issue with the pressurizer spray heads. They were brought into the scope of license-renewal because the FSAR credits the spray heads with pressure control, and cooling temperature control following a fire event.

They have the typical reactor vessel integrity program. I would like to defer any questions on this a little bit, if you have any, a little bit later, when I will discuss the time limiting aging analyses for the vessel because they're inter-related. There's the CRDM and other vessel closure penetration inspection program, and I can't emphasize this program enough.

What I really want to emphasize to you is that the current licensing basis for this program keeps changing yearly up to now. There have been previous cracking events at Oconee and Arkansas, as well as the extremely significant cracking event at Davis-Besse. The Staff included the review of all pertinent generic communications issued on CRDM and vessel head penetration nozzle cracking as part of its review of this program.

We did leave an open item on the program due to the fact that we issued a bulletin in April that really was brought to light, the question of whether current industry practices for inspecting vessel head penetration nozzles are adequate at this point. The licensee has come back with a draft resolution of this issue. Basically, they are committing to implementing their program as described

in the response to Bulletin 2002-02, as their means of addressing this issue as it relates to the McGuire and Catawba application.

At this point, it's a confirmatory item. When they send it in, we'll look it over and make sure that it's all okay.

CHAIRMAN BONACA: I was confused a little reading the program here, and Appendix B, there's a B.3.9-2. It says, "For McGuire this new inspection would be completed following issuance of the new operating licenses." What is this new inspection?

MR. MEDOFF: Where are you now?

CHAIRMAN BONACA: I'm reading the program on the application.

MR. MEDOFF: The CRDM program?

CHAIRMAN BONACA: It's page B.3.9-2. And it refers to this new inspection, and I was confused about what new inspection is this? I thought that McGuire would be following that curve and performing the CRDM inspections when the time comes. This implies that there is an additional inspection being done?

MS. HAZELTINE: At the time we submitted our license-renewal application, the CRDM nozzle inspection program was a new inspection. As Jim has

indicated, the state of the industry, things have continually changed, so we have things going on right now as part of our current licensing basis, that we've been required to do. Some of those things happened after we presented the --

CHAIRMAN BONACA: I understand. So this inspection is not a new inspection. It now has become the inspection that you will perform as part of the program, as the industry recommends.

MS. HAZELTINE: Right. Things have changed since we submitted our application.

CHAIRMAN BONACA: I understand. I just was reading it, and tried to figure out what is this new inspection.

MR. GILL: This is Bob Gill. Our latest response to Bulletin 2002-02 indicated we'd provide our formal plans on the McGuire and Catawba vessels within four years. They are very low susceptibility vessels. I think the written response we're going to put in reiterates those commitments in there.

We went through this thoroughly with the regional inspectors on site, and brought down our experts, and liken it to, you know, the COB is the COB today, but at year 40 there's a step change in what we're doing. And I think part of this submittal, we

were aware of the recent history just prior to, and I think something had happened in like April of `01, just prior to us making the submittal, and we put some paragraphs alluding to that operating experience. We knew something was going to happen. We just didn't know what. But since that time, we had 2001-01 as a Bulletin, and two 2002 bulletins on the same topic, so at least three bulletins now since this submittal that will now step-change the Part 50 commitments in that area, and will most likely equal what we've already committed to for license-renewal, but just bring it forward doing something in the current term.

CHAIRMAN BONACA: I understand. It's just the way this read is -- I thought that you would commit to an additional inspection, and I was surprised that you would do that.

MR. GILL: Yeah. Well, we had identified as an aging affect.

CHAIRMAN BONACA: Okay.

MR. GILL: And actually, Oconee has very similar programs, so we knew we had to do something.

CHAIRMAN BONACA: Thank you.

MR. MEDOFF: Moving on --

MEMBER LEITCH: Are these plants low susceptibility because they're relatively new, or are

they in the so-called cold head?

MS. HAZELTINE: It's the cold head.

MEMBER LEITCH: The cold head.

MR. MEDOFF: Moving on, we briefly touched on the BMI thimble tube inspection program. There's another new program, the RV Internals Program. I'm prepared to discuss any questions you have with that, as well as steam generator surveillance program. And John will address any questions you have with respect to that.

We had five open items. The applicant has provided us with draft resolutions of these items. They all appear to be acceptable at this point. They haven't been formally submitted, but given what they've proposed to us, we have turned these into confirmatory items, based on their advanced notice to us.

MS. FRANOVICH: And when we met with the Staff in September, they provided hand-outs for the meeting that contained proposed responses to the open items, so based upon those proposed responses, these are confirmatory items.

MR. MEDOFF: I'll briefly touch on these five confirmatory items. The first one, really the issue is whether VT-3 exams proposed for the one-time

inspection of the McGuire pressurizer spray head would be adequate to detect cracking in the spray heads, and the Staff considers that VT-1s are actually the appropriate visual examinations. And the applicant has provided the draft resolution, is that they will change that to VT-1s.

In terms of the reactor vessel integrity surveillance program, there were some questions whether the capsules proposed for the extended periods of operation would provide relevant data for the vessels as applicable for the extended period. You don't want to amass so much fluence that it's not going to provide relevant data, nor do you want to have too little fluence, so you have -- when you're irradiating the surveillance capsules in the vessel, there's a certain fluence criteria that we use, where we would consider the data when the capsules are tested, to consider them to provide relevant data. So we had a couple of questions on that, and they're going to provide an updated schedule consistent with the Staff's questions.

I just briefly touched on the vessel head nozzle inspection program. Basically, they're going to commit to their program as referenced in the response to Bulletin 2002-02. We asked a question on

the reactor vessel internals. This really was a three part question, but the main issue was whether inspecting the baffle forgings and welds, the baffle plates and welds would provide a sufficient basis for scheduling examinations of the remaining three units.

When we had our discussions with the applicant in September, they pointed out some differences in the RV internal designs. The applicant has preferred one additional unit for these inspections, McGuire 2, and based on the differences in designs, we think that the inspections at McGuire 1 and 2, as well as previous inspections at all three Oconee units should provide relevant data as to whether they need to schedule further inspections at Catawba 1 and 2.

MS. FRANOVICH: And the applicant, as I indicated earlier this morning, proposed to perform those inspections on a staggered basis, one around year 40, and the other around year 50.

MR. MEDOFF: And the final open item was really an SR supplement issue with regard to the steam generator surveillance program, and I'll let John touch on that one a little bit.

MR. TSAO: Basically, this program, the applicant's steam generator surveillance program

committed to NEI Directive 97-06, but in their SR supplement they forgot to mention the NEI 97-06, so we requested the applicant to include that. And basically, this is a documentation issue. And the applicant is going to commit to that.

MS. FRANOVICH: That concludes the Staff's presentation on Section 3.1, unless there are any questions we can address at this time.

MEMBER FORD: The one thing I couldn't find, and I'm sure it's there, is a question of cracking of the baffle bolts.

MR. MEDOFF: Yes. We --

MEMBER FORD: I couldn't find it. I'm sure it's there. It must be there.

MR. MEDOFF: Yes. We address baffle bolt. It's in our review of the reactor vessel internals Aging Management Program.

MEMBER FORD: Okay.

MR. MEDOFF: Basically, what -- bear with me, Dr. Ford.

MEMBER FORD: Well, I found it. It's one piece further on, 3.145.

MR. MEDOFF: There should be a table associated with that page.

MEMBER FORD: Yeah, 3.145. Okay.

MR. MEDOFF: Basically, another review of that. They were going to use the Oconee 1 and the McGuire 1 exams as a basis for whether they need to schedule further examinations at Catawba 1 and 2 and McGuire Unit 2.

MEMBER FORD: I notice in this particular area, you don't take into account the extensive French experience of cracking of these components. Is there a reason for that, why our industry doesn't take into account a lot of experience in 58 whatever it is, PWRs in France?

MR. MEDOFF: Well, this is definitely my fault, and I should have been aware of it before, but this is the first I've heard about the French data, because this is the first time I've done RCS.

MEMBER FORD: Okay.

MS. FRANOVICH: Do you think it's worthwhile for the Staff to go back and take a look?

MEMBER FORD: No, I don't think there's a fault. I'm just looking through depth, as to whether you're looking in other places rather than just the United States.

MS. FRANOVICH: Domestic operating experience. Right.

MR. HISER: This is Allen Hiser of EMCB.

U.S. plants have done some inspections on baffle bolts, and the cracking so far has been found not to be too significant. And the industry does have a continuing program to address baffle bolts and all of the internals, and that's what's integrated within the license-renewal programs at Calvert Cliffs, Oconee, and all the PWRs. So there are ongoing efforts in that area, and I would assume that's integrated, those results would be integrated with the Catawba/McGuire internals inspection program. So we are very much -- that data very much is incorporated within the review of this.

MEMBER LEITCH: On page 3-146 of the SER, right below the middle of the page, I don't mean to make a thing about typos, but I'm not sure if it's a typo or my lack of understanding. It speaks about inspecting the internals on McGuire 1 and Catawba 1 and 2, depending upon the results of Catawba 1. I think that McGuire 1 in that line should be McGuire 2, unless my understanding is --

MR. MEDOFF: Right. Right. That is a typo. Thank you.

MS. FRANOVICH: Any other questions for the Staff? Okay. Jim, John, thank you very much.

MR. MEDOFF: Thank you.

MS. FRANOVICH: Okay. The next section that the Staff reviewed is the -- or the next section in the SER is the Aging Management Review results for engineer safety features, which there are eight systems. And these are just a handful of those systems.

The Staff concluded that all aging affects were identified. The aging affects listed were appropriate for the materials and environments listed, and concluded with reasonable assurance that the intended functions will be maintained consistent CLB during the renewal period. There were no open or confirmatory items in this section. Any questions on Section 3.2 of the SER with open items?

Okay. The next section was auxiliary systems, of which there were 38. And these are just the types of auxiliary systems that the Staff reviewed. The Staff identified a number of open items, two of which are now confirmatory. The remaining open item had to do with a condenser circulating water system expansion joint that was brought into the scope of license renewal as a result of a Staff request for additional information.

When the applicant indicated in the REI response that the subject component was within scope,

provided Aging Management Review results, indicating that the component was made of rubber material, and specified no aging affects. The Staff kept the item open because the Staff felt that exposure to UV rays in this component was in the yard, yard environment might cause degradation. The applicant has since informed the Staff that this particular expansion joint is located in a pit some 30 feet below ground level, and it doesn't get much UV exposure. But the Staff still has an intuitive lack of confidence that a rubber expansion joint, a rubber component can last for upwards of 60 years. So pending further Staff review and information from the applicant that indicates exactly what this rubber material is, and why it's good for 60 years, this item remains open.

MEMBER POWERS: Is it exposed to any oxidizing material like sulfur dioxide, nitrous oxide, hydrogen peroxide?

MS. FRANOVICH: To my knowledge it is not. It's in a pit that's out in the yard beside the turbine building at Catawba. There are some motors, some circ water motors that are in this pit.

MEMBER POWERS: That's enough.

MS. FRANOVICH: So then perhaps that environment would be conducive to aging.

MEMBER POWERS: Any vigorous oxidant like ozone, any of the nitrous oxides, nitric oxide, and nitrogen dioxide, any hydrogen peroxide, all of which are found in combustion motor exhausts or the atmosphere coming off electrical motors will attack rubber, and cause it to cross-link, thereby embrittling it.

MS. FRANOVICH: And my understanding is that these pump motors are electric, but you say that the same --

MEMBER POWERS: That's enough.

MS. FRANOVICH: Okay. Thank you, Dr. Powers.

CHAIRMAN BONACA: There was some experience at both Catawba and McGuire about the nitrate induced stress corrosion of Carbon Steel in the component cooling system. That was repaired. Right? And did you have any monitoring, that kind of experience there?

MR. ROBINSON: This is not related to the expansion joints though.

CHAIRMAN BONACA: No.

MR. ROBINSON: Okay.

CHAIRMAN BONACA: I was talking about part of the systems, I believe the --

MR. ROBINSON: I think I'm still confused.

MS. FRANOVICH: I think Dr. Bonaca is asking about some operating experience that was listed in the application pertaining to nitrate induced stress corrosion cracking of component cooling water systems.

CHAIRMAN BONACA: Right.

MS. FRANOVICH: And I seem to remember a little bit about that from when I was there. I don't know if it had to do with some biocide that they were testing out, but that's a better question for Duke to field.

MR. SEMMLER: In their closed cooling water system they use a corrosion inhibitor, and the chemistry program was maintaining the corrosion inhibitor at the upper-end of the recommended range by the vendor. We started to have some cracking in the crevices, in the welds, and in the closed cooling water system. And in contact with the vendor, and research in metallurgy analysis of some of the cracking, they recommended that we maintain the corrosion inhibitor in the lower to mid-range of the recommendation. And chemistry folks made the changes and have not had any problems with cracking of that nature any more.

MS. FRANOVICH: What was the vintage of that problem, Mike? Was that in the 80s?

MR. SEMMLER: Mid-90s.

MS. FRANOVICH: Mid-90s.

MR. SEMMLER: Yeah. It's been five or six years since they've done that, and we haven't had any more problems.

MS. FRANOVICH: Okay. Thank you, Mike.

MR. SEMMLER: Thank you.

MS. FRANOVICH: Any other questions on the open item, or the two confirmatory items in Section 3.3? Okay. We'll go on to 3.4.

The Staff concluded that there was one open item pertaining to one-time inspection of auxiliary feed-water system. This open item also applies to main feed-water, although we did not explicitly state that in the SER with open items.

What the applicant relies on to manage the loss of material of its secondary systems auxiliary feed-water and main feed-water, in particular, is they credit their chemistry control program. And it has been the Staff's position that chemistry control programs should be -- let me put it this way. An inspection of the systems that credit this program should have a one-time inspection to verify the

effectiveness of the chemistry control programs.

When we met with Duke in September, they indicated that they often go into the condenser and the look at the material condition of the components exposed to feed-water, and indicated that they have not seen loss of material as an aging affect in these components.

The Staff clarified that what it really needs is a deliberate procedure to actually seek out those aging affects, and document evidence indicating that they are not present, so Duke has gone back to evaluate what they would like to propose to resolve this open item. And this open item is indicative of how the Staff has treated this particular one-time inspection for previous applicants.

MEMBER LEITCH: Did you say that that inspection would be done in the condenser?

MS. FRANOVICH: No. Actually, we didn't specify where the inspection needed to be, although we did indicate that the results of the inspection should be generalizable to not only the auxiliary feed-water system, which has the open item, but also the main feed-water system.

MEMBER LEITCH: Yeah. I would generally not think that the condenser would be a good place to

do inspections.

MS. FRANOVICH: Any other questions on Section 3.4? Okay. Section 3.5, containments, structures, and component supports. The Staff identified three open items. One of those open items has been resolved, and that's the open item 3.5-2, which addresses the environment for below-grade concrete. And the applicant indicated and provided data to the Staff, indicating that their groundwater is not aggressive. They relied on 20 years of operating experience and data collection to come to that conclusion. And the Staff found that that position was acceptable, that operating experience was acceptable.

At this time, I'd like to ask David Jeng to come up and present the open items on the remaining -- two SER open items that have not been resolved. David Jeng was the Lead Reviewer on the Staff for review of the license-renewal application Section 3.5. David.

MR. JENG: Good afternoon. My name is David Jeng. I am a member of the Mechanical and Civil Engineering Branch. As Rani said, we have two open items. The first one is regarding the concrete elements in the accessible above-grades aging

management issue. The applicant indicated that only those elements which are exposed to harsh or abrasive environments needs to be managed. Whereas, our ISG on concrete management position calls for all in-scope concrete need to be at least periodically inspected. And this is where we differ with the applicant.

However, on September 18th, we had a good communication with the applicant, and I guess the indication is that response will be forthcoming from the applicant to try to resolve this issue.

The second item pertain to the aging management of the concrete component in the ice condenser systems. There are three concrete elements within the ice condenser. One is the wear shroud, the second is the structure of concrete supporting that shroud, and the third one is the outer ring support wall, concrete which are normally inaccessible because of the insulation panel is placed upon the surface of those concrete.

Again, the Staff is concerned that these elements needs to be somehow managed. The applicant also had a good discussion with us on September 18th, and there's a good understanding of how the issue could be mutually resolved. Again, we are awaiting the applicant's response on this second item.

MS. FRANOVICH: Let me clarify. The applicant actually did submit interim responses to our open items, these two open items. The Staff is currently reviewing those responses to ensure that they will adequately resolve these items, so the ball is in the Staff's court at this point. Any questions for Mr. Jeng?

MEMBER POWERS: When you think about below-grade concrete and its exposure to the water, groundwater.

MR. JENG: Yes.

MEMBER POWERS: Do you think in terms of sulfate attack, or phosphate attack, or is it all carbon dioxide attack?

MR. JENG: Yes. As a matter of fact, the Staff has established a position of defining what would constitute aggressive elements which would form the concern. Three criteria. One is the pH value, and the way that you see the pH value is to stay about 5.5. Second is the fluoride content, which we maintain should no exceed 500 PPM. And the third is the one you mentioned, sulfate attack, and we are maintaining should not exceed 1,500 PPM. So the applicant in this particular case will submit their long duration testing data which has shown the datas

way below these rates.

MEMBER POWERS: Do you not include phosphate in there?

MR. JENG: Yes. Phosphate should not exceed 1,500 PPM.

MEMBER POWERS: Okay. And sulfate is also 1,500 PPM.

MR. JENG: No, Chloride.

MEMBER POWERS: Chloride.

MR. JENG: Yeah, 500 PPM.

MEMBER POWERS: Sulfate is not an attacker?

MR. JENG: The Staff set the -- actually, these are the number recommended by the expert on that technology, and they recommended that these three items should be the basis for concern, what would be considered to be aggressive, and what non-aggressive environments.

MEMBER POWERS: I've certainly seen sulfates attack concrete surfaces. Phosphate, I have no experience with Chloride attack on concrete.

MR. JENG: Well, I'm talking on Sulfate. I'm sorry. It's 1,500 PPM Sulfates.

MS. FRANOVICH: Tim, if I can have the projector paused, we've got a slide of some of the

data and parameters that we used to evaluate this issue.

MEMBER ROSEN: While you're having that slide put up, let me ask you a question about drawing a conclusion that the sub-surface concrete structures are protected because the environment meets your criteria, based on sampling of that sub-surface environment now. Is there any guidance offered by the Staff to the applicant, or requirements in terms of continuing to check the sub-surface environment in the future? We're talking about a long term here. Is there any likelihood that the sub-surface environment might shift in some way, and put it in a condition which might affect the structures in the future?

MS. FRANOVICH: That's a really good question, and the Staff asked that same question. And what the applicant replied to the Staff was that their water contour tables indicate that any change in the groundwater on-site would result from an event on site, a chemical spill of some sort on-site, so they didn't really have to worry about things happening off-site that could affect the groundwater environment on-site. And we looked at some water contour maps in the original licensing environmental report, and confirmed that what they were telling us was true. So

the Staff felt that their operating experience indicates that the groundwater is non-aggressive. It's not likely to change in the period of extended operation. And for the Staff to hypothesize an event on-site that would cause the groundwater to change, would be hypothetical, which is not reasonable.

MEMBER ROSEN: Well, I'm not thinking about it based on an event that happens on-site, because clearly, Duke would know about a major, say Sodium Hydrochloride, is they used it, spill or something like that. And I'm just thinking that over time, we're talking about fairly long term times here, over time maybe some activities off-site, maybe, you know, there's a lot of development going on, things shift in the environment. And it seems to me it would be prudent to have some requirement to confirm, not every day, not every month, not even maybe every year to take a groundwater sample and confirm that the original conditions are still pertinent.

MS. FRANOVICH: Yeah. I understand your concern, and I believe that the applicant does perform groundwater monitoring, and will continue in the period of extended operation. But they don't credit that for license-renewal, because they have established that the groundwater is not aggressive.

MEMBER ROSEN: Today.

MS. FRANOVICH: Today. And they've also established that it's not likely to change in the future. It does seem speculative, it does. I agree with you, but at the same time, the Staff doesn't have a basis for --

MEMBER ROSEN: Well, my basis, I don't know what the Staff's basis is. My basis is the sampling of groundwater ought to be fairly cheap and simple, and it is a major criteria for concluding that important safety-related structures are not going to be degraded underground.

MS. FRANOVICH: I agree with you, but this is an issue that Duke has challenged the Staff on, on principle.

MEMBER POWERS: The magnitude of affect would have to be fairly dramatic.

MR. JENG: Some additional comment. The matter is very stable. You know, the core -- some specific impact, you have to put erosion, vibrations, and we believe that it should be very --

MEMBER ROSEN: Well, then there should be no problem taking the sample and proving it.

MS. FRANOVICH: I understand, and I don't disagree with you.

MR. JENG: Dr. Rosen, we will take that into consideration.

MS. FRANOVICH: I don't know if Duke would like to comment on that. I guess not. David, do you want to talk about the data and parameters on this slide?

MR. JENG: Yeah. The one section here are based on Duke's input. As you can tell, these are based on many, many years of on-site testing. The bottom column, I call your attention, these are the acceptance limits for the pH, and the Chloride, and the Sulfate. As you can see, the main ones shown are underlined on different occasions on different sites, and they are way, way below the 500 and 1,500 limits we have shown, so this is the basis upon which the Staff resolved --

MEMBER POWERS: You don't have a limit for Phosphate.

MR. JENG: No.

MEMBER POWERS: You know, it might be worthwhile just to find out. I mean, there are very few sites in the United States where you have a high Phosphate content, Texas being a notable exception. But I've seen Phosphates attack concrete. It's the same mechanism as the Sulfate. You turn Calcium

Hydroxide into Calcium Phosphate, and that solubilizes it, and whatnot. Your pH control keeps your CO2 levels down reasonable, and whatnot.

MR. JENG: I think I should make one point. Based on the Staff many years of experience on the concrete performance, its quality, and the way we enforce certain criteria, HEI-318, HEI-201, all these documents which control the action, emission, design and the installation reaction and control.

MEMBER POWERS: Everybody in America uses those same criteria.

MR. JENG: But this is not so. Concrete is very durable --

MEMBER POWERS: It's worth looking at to see, but I mean, I bet they're not a half a dozen sites that have very much Phosphate in them. It will surprise you when it occurs.

MEMBER FORD: I'm going to show my ignorance. What are the material properties for the reinforced concrete to which these acceptance limits apply, fragility, corrosion of the rebar?

MEMBER POWERS: Decrepitation.

MEMBER FORD: Decrepitation.

MR. JENG: This is mostly concrete which is, to some extent, very porous, and they would be

subject to interaction by different Chlorides and Sulfides, and in an acidity environment they tend to, you know, be influenced more than in alkaline environment. And the experience and the tests have shown that if concrete was placed in such aggressive environments over the years, with 100 years experience, they are staying there in tact, strong down in the ground there for 100 years, so we are quite confident these are good criteria.

MEMBER FORD: I seem to remember at Oyster Creek ten, fifteen years ago there was a major corrosion problem of the, in this case the liner, the carbon-steel liner. And I realize it's not pertinent to this particular containment design, but there is rebar presumably in this, and it can corrode. And presumably, that would affect the overall strength, the composite strength.

MEMBER POWERS: You have to get to it first.

MEMBER FORD: I recognize that.

MEMBER POWERS: The decrepitation is how you get to it.

MEMBER FORD: Yeah.

MEMBER POWERS: And all that's happening here is the Chlorides and the Sulfates turn the

Calcium Hydroxide into Calcium Chloride, Calcium Sulfate, and it loses its adherence, and the lock falls out, and then you can get to the rebar. And the rebar will disappear instantly in this kind of environment.

MEMBER FORD: Yeah. Thank you.

MS. FRANOVICH: I just wanted to follow up based upon the comment from Dr. Powers. Would Duke like to add any anecdotal information about the Phosphate levels in the groundwater or the lake water for McGuire and Catawba?

MS. KEISER: I can't give you the exact numbers, but it is tested as part of the groundwater monitoring. And it is similar to the Chloride and Sulfate levels. It is very low compared to the limits.

MS. FRANOVICH: Is that something that we could probably get, the Staff could get, just to confirm, verify, just for our own edification?

MS. KEISER: Yes, if you needed to get that. And I wanted to add about the -- doing the testing and the idea that what we've done may not be adequate in the future to determine the aging affects for the concrete. We had at one in time in our office, the geologists at Duke Power that are familiar

with the groundwater, with the soil around the plants, and they participated with Rani and some of the other NRC Staff that was there on-site, looking at again, the topography, what would affect the groundwater around the site, the soil types and things like that. And the information they have just for that locality, the Piedmont area, there have not been changes over, you know, hundreds of years over the things that are in that groundwater. And so we feel that what we've done is adequate to show that it will not change in the future, unless there is some type of accident on the site. And again, we would be cognizant of anything that happened there. We didn't feel that it was necessary to do any groundwater monitoring for license-renewal.

MEMBER POWERS: You don't have any Calcium Aluminate concretes, do you?

MS. KEISER: No, we do not.

MEMBER FORD: I think the remark Mr. Rosen was making, for instance, relates to, for instance, someone mentioned the two lakes which are supplying separately the two reactor sites. One is, I hesitate to say it, brackish, but it's far less purity than the other. And if there are big housing developments to go up in that area, then it could get even worse. I

think that was what you were talking about, not the 100 year geological time.

MS. KEISER: Right. And when we were showing the topography to the NRC staff, we were showing that that would not -- the way that the water flow would flow from the lake to the site or away from the site, like it would not yield where the water would flow to the site, the topography would not lend it where it would have any off-site affects to the ground water.

MS. FRANOVICH: Thank you. That was Debbie Keiser, Duke Staff. Any other questions on Section 3.5 of the SER? Okay. With that I'd like to ask Paul Shemanski to come to the table. Paul is a seasoned veteran of license-renewal reviews, and --

MEMBER POWERS: That's why his hairline is approaching mine and things like that.

MS. FRANOVICH: I will decline to comment. But I'm going to present the presentation, but I asked Paul to be at the table with me, because this is on the outer edges of my scope of knowledge, so he'll be able to address any questions that you ask that I cannot answer.

Okay. Section 3.6 of the SER with open items documents the Staff's evaluation of Aging

Management Review results provided for electrical and INC. The aging affects fall into three categories. The first is those that are caused by heat and radiation, and this is degradation really of the insulation covering electrical cables.

The Aging Management Program credited by Duke is the non-EQ insulated cables and connections inspection program. Staff currently has an open item with regard to this particular program, this visual inspection proposed by Duke, and its capability of detecting cable insulation degradation that may be very minor, but for certain cables instrumentation the high range radiation and neutron monitoring instrumentation cables, the Staff is concerned that even a slight degraded condition of the insulation could cause an exponential result in the signal that's traveling through these cables. And so in the past, the Staff has found a loop calibration procedure to be acceptable for testing insulation resistance of cables of this nature, so the Staff is currently dialoguing with Duke to determine what an adequate Aging Management Program will be for Duke. But the Staff's concern is really with these two instrumentation cable types.

Staff also has a confirmatory item with

regard to an FSAR supplement change that it expects based on a response to our potential open items letter, whereby the applicant indicated that the potential for moisture in the area of degradation would be considered by their inspection program.

Are there any questions about this open item?

MEMBER LEITCH: Isn't there a -- does this touch on a generic safety issue? I can't remember the number, but --

MR. SHEMANSKI: GSI-168.

MEMBER LEITCH: That's the number. Yeah, right.

MR. SHEMANSKI: No, not really.

MEMBER ROSEN: That's the number, but no, not really.

MR. SHEMANSKI: No. This particular issue deals with the degradation of a specific set of cables, as Rani mentioned. The neutron monitoring or irradiation monitoring cables, they operate typically with very low currents, 10 to the minus 12 amps, and the concern is that if they're exposed to a localized adverse environment from temperature or radiation, a very slight change in the insulation resistance can result because of the degradation of the insulation

from the high temperature or high radiation. And a very small in insulation resistance could affect the instrument loop accuracy readings, basically, in the control room, the LPRMs, APRMs, and so forth. And the question really on this open item deals with which technique is better for monitoring insulation degradation. Staff, I think we have at this point, more confidence in the calibration program. That is a routine program. Typically, it's run about every 18 months in plants. It's part of their normal surveillance program, where they calibrate the instrument loops. And Duke is proposing an alternate method; that is, a visual. They believe by looking at the cables visually, looking for swelling or discoloration, or cracking that that would indicate degradation of the insulation. So we're having this dialogue between us, and trying to sort things out. But I think right now the Staff's position is what is indicated currently in GALL.

This technique was identified in the first application by Calvert Cliffs, and subsequently made its way into GALL, so that is the current Staff position regarding these particular type of cables.

MEMBER LEITCH: So that an unexplained calibration shift then might be perhaps the most

sensitive way of detecting cable degradation.

MR. SHEMANSKI: Well, that's what we feel at this point, that calibration is somewhat more sensitive. We just have a better gut feel for the calibration test at this point. Again, it's done more frequently, every 18 months. And if the calibration goes out of the upper or lower tolerance limits, if you're not able to recalibrate it, you know, to get it back in, then you would do a root cause. And maybe that root cause would lead to identifying the cable as the culprit that is degrading. It could be the sensor, it could be the transmitter, but it gives an opportunity to do a root cause analysis.

And also, it's done, as I mentioned, about every 18 months. Whereas, the visual that Duke is proposing, that would be done at year 40, and at year 50. So it seems like the calibration program, at least, gives you more of an opportunity to detect degradation. But again, we are discussing this. At this point we're not totally ruling out visual, but we're looking for a stronger technical argument that visual can, in fact, detect degradation for these sensitive type of circuits.

MEMBER LEITCH: Okay. Thank you.

MEMBER POWERS: Do we have an experiential

base that something like, since I'm color blind that I would be a terrible inspector, I suspect, for discoloration. How much color change corresponds to how much degradation and resistance?

MR. SHEMANSKI: No, right now that doesn't exist. I mean, when you do a visual inspection on cables, it's kind of a screening type examination. You look for things like cracking, discoloration; that is, typically the cables are dark, you know, black. And when they're exposed to high temperatures they do tend to change colors. They might become brown or white. I mean, you look for swelling, cracking, discoloration, those type of things. And if you find those visual effects, then you would probably want to go ahead and do a more detailed root cause analysis. Right now there are no real criteria that correlate any of those visual anomalies with --

MEMBER POWERS: There must be some basis for them saying gee, we can see.

MR. SHEMANSKI: Well, there is a basis. I think what they're trying to do is extend the bases that are used for power and control cables, where visual actually has been shown to be effective as a condition monitoring technique. But the question the Staff is struggling with now is for these particular

circuits that operate in a very low current range, 10 to the minus 12 amps, is visual really good enough to give you some confidence that you will be able to detect degradation.

The other circuits I mentioned, the power and control cables, if you lose insulation resistance there, it's not such a big deal. But these are very extremely sensitive circuits, and as Rani mentioned, they operate on kind of an electrical exponential curve, and just a small change -- when you're dealing with 10 to the minus 12 amps, you cannot afford very much leakage occurring before you get into trouble, and perhaps get inaccuracies in the instrument loop readings.

But again, if industry can provide us with some additional information regarding visual, you know, we'll buy into it. But at this point, I don't think we've seen enough data or information along those lines to convince us, so we're basically sticking with calibration at this point.

MS. FRANOVICH: And it seems like the frequency is another concern too, the opportunity to identify degradation.

MEMBER LEITCH: To just move briefly into the area of the GSI-168, if we could. That's another

one of these GSIs that's not quite resolved, and how did this deal with that, commit to doing whatever is necessary to support the resolution.

MR. SHEMANSKI: Well, first of all, the applicant did not address the GSI in the application itself. We subsequently issued an RAI, or I forget, a telephone conversation with them. They have to come back, and they made a proposal to us that if we resolve the GSI by November 1st, I believe, then they would be able to address it before the final safety evaluation report has been issued.

We don't have any trouble with their response, but we are certainly not going to have GSI-168 resolved by November 1st. We are working on it.

MEMBER POWERS: Well, you probably will. It's just the year in question.

MR. SHEMANSKI: Right. Basically, on GSI-168 we received the technical assessment from the Office of Research. It has been sent over to NRR, and we are presently developing a draft of the research, technical assessment. We have a draft summary, and we are going to issue it as a generic communication probably within the next several months.

Prior to issuing it, we are going to give the ACRS the opportunity to, whether or not you want

a presentation on the final generic communication prior to sending it out. We have not determined if it's going to be a generic letter, information notice, or a regulatory issue summary, so that is going to be dealt with very shortly.

MEMBER LEITCH: So then that would be handled then on the current licensing basis then?

MR. SHEMANSKI: Yes. Whatever resolution comes out of GSI-168, it will affect all operating reactors across the board. It will become part of their current CLB.

MEMBER LEITCH: Okay. Thank you.

MS. FRANOVICH: Any other questions on this slide? Okay. We'll go onto the next slide. Another aging affect of electrical and I&C equipment is caused by moisture and voltage stress for inaccessible media voltage cables. The aging affect for this is formation of water trees and localized damage. And the Aging Management Program credited by Duke for this aging affect is inaccessible non-EQ medium voltage cables inspection, I'm sorry, Aging Management Program.

The Staff has a confirmatory item on this issue for the applicant to update its SR supplement description of this program to eliminate reference to

significant moisture. And this is a change that resulted from a response to our potential open items letter.

CHAIRMAN BONACA: If I remember, they defined significant moisture as exposure, at least 25 percent of the time.

MS. FRANOVICH: Actually, they characterized it as exposure that lasts three years or more. And the Staff had a lot of questions about this AMP. The AMP is to perform a test every ten years of the cables to ensure that they are not degrading. And the applicant proposed an alternative to that test, to do a visual inspection of the accessible cables, and determine or confirm that there has been no exposure to moisture. If they can confirm that, then they felt that that would be an adequate alternative to the ten year test.

Staff felt that exposure or significant exposure to moisture, being defined as exposure for three years or more, was non-conservative, and so the applicant came back and re-defined their Aging Management Program to eliminate reference to significant exposure to moisture, and to eliminate their alternative of using an inspection program to confirm that there is no moisture in the accessible

cables.

The Staff is currently asking the applicant to provide a little more information that we did not take issue with when we issued the SER with open items pertaining to the proven capabilities of the test that they will use in the period of extended operation. We anticipate that there will be advances made in testing techniques and technologies in the next ten years, or twenty years, and we haven't asked the applicant to specify what test they will use to perform this ten year test, but we would like the applicant to indicate that this will be a proven test. This is language similar to what we've asked for from other applicants. It's language that's found in the GALL report. It's found in some of the previously issues SERs, and we're working with Duke to get that language so that the Staff has confidence that there will at least be a certain caliber test that will be capable of revealing degradation.

CHAIRMAN BONACA: And you're looking also for a more frequent test than ten years?

MS. FRANOVICH: No. I think we're still satisfied with ten years, although the Staff may evaluate the acceptability of that frequency on a generic basis. But for Catawba and McGuire

specifically, the Staff is satisfied with ten years.

MR. SHEMANSKI: Actually, there are two tests, one at year 40, and then one at year 50.

CHAIRMAN BONACA: Yeah, well not for each site.

MS. FRANOVICH: I think for each site.

MR. SHEMANSKI: Yeah. That's how we have it currently described in the GALL, X-E3, I mean IX-E3.

MS. FRANOVICH: Any other questions on this slide? The third and last aging affect that was evaluated by the applicant and reviewed by the Staff, was caused by Boric Acid ingress into connector pins. And the aging affect there is corrosion.

The applicant credits the Aging Management Program of fluid leak management program, which is the program they use to identify any Boric Acid corrosion of structures or components. And there were no open items identified in this section. This is consistent with what applicants have credited in the past, and the Staff finds this acceptable.

CHAIRMAN BONACA: Going back to the previous two issues, one of non-EQ low voltage accessible cable, and the other one, non-accessible cable. What the applicant was proposing is the same

thing they did for Oconee. Right?

MR. SHEMANSKI: Yes.

CHAIRMAN BONACA: You accepted those positions for Oconee.

MR. SHEMANSKI: Yes. The slight difference is that during the Oconee review, the issue of the calibration versus visual for the neutron monitoring and radiation monitoring cables, that did not surface during the Oconee review. Keep in mind, that particular program was identified during the first review of Calvert Cliffs. Calvert Cliffs proposed the calibration Aging Management Program. The main reason we did not focus in on that for the Oconee review was, at that time we were just beginning to develop GALL, the cable Aging Management Programs that are currently in GALL, so we did not focus on -- that is the difference that I would like to point out between the Oconee and the Catawba-McGuire reviews, the calibration program.

(Whereupon, the proceedings went off the record at 3:00 p.m., and resumed at 3:16 p.m.)

CHAIRMAN BONACA: On the record. If everybody is ready, we will start with one minute less.

MS. FRANOVICH: Okay.

CHAIRMAN BONACA: We're anxious to hear about TLAAs.

MS. FRANOVICH: Well, let's not keep you waiting. Chapter 4 of the SER documents the Staff's review of the time-limited aging analyses provided by the Applicant in their application. These TLAAs cover a number of areas, some are listed on this slide and a few more at the top of this slide. We have prepared presentations on the neutron embrittlement, thermal fatigue and underclad cracking, and EQ program.

What I wanted to do before we go to my reviewers to talk about those TLAAs is address the depletion of nuclear service water pond volume due to run-off. This is a TLAA that was asked about earlier in our presentation. For this time-limited aging analysis that I believe applies only to Catawba, the Staff indicated that there was an initial analysis that evaluated available volume of the pond over a 40 year period and loss of that volume due to sedimentation.

They indicated in their TLAA discussion that they have a tech spec surveillance that requires that they ensure that the volume of the pond is monitored by elevation. I believe it's 571 feet is what the water level is required to remain at or above

by tech specs. So the Staff asked a question about what if in the future Duke performs a survey of the bottom of the pond and finds that there is an abundance of sediment at the bottom of the pond.

How would Duke ensure that the volume is still adequate to address all the design basis events that are relied upon or that rely upon this volume of water for plant cool down? The Applicant came back and said that they would either dredge the pond or they would add volume to the pond by increasing the pond size, a number of actions that they could take to ensure that adequate volume is there, but ultimately they have a tech spec surveillance that ensures that they have the minimum allowable volume by elevation in the pond. Are there any questions on that TLAA?

MEMBER LEITCH: But the tech spec surveillance of it just applies to the water level. It doesn't say anything then really about what's below the surface. That's good for the top, but how about the bottom?

MEMBER ROSEN: You have to have it surfaced at this level. You need only one inch of water.

MS. FRANOVICH: Right. I understand the question. In reading this at the SER a couple of days

ago, I also saw that just because you're looking at the elevation doesn't mean that you know what sedimentation activity is going on in the pond. So at this point, let me go out to our reviewer. I believe it was Jai Rajan for a more elaborate discussion of the TLAA. In absence of the reviewer, then perhaps Debbie Keiser of Duke can discuss this TLAA.

PARTICIPANT: Jai is here.

MS. FRANOVICH: Jai, could you please go to the microphone? This is Jai Rajan of the NRC Staff.

MR. RAJAN: The actual reviewer is not here. It was Dr. Pitchumani. I just put together the information that was available.

MS. FRANOVICH: Okay. Was a reviewer assigned to this TLAA after Mr. Pitchumani retired. Kamal?

MR. MANOLY: Yes. This was Kamal Manoly from the Mechanical Branch. Dr. Pitchumani finished the SPOC on the TLAA. There was no open items on it, so there wasn't really any follow up that we needed to do on it.

MS. FRANOVICH: Okay.

MR. MANOLY: We can take the question and get back to you on it.

MS. KEISER: I can address this program. I'm Debbie Keiser from Duke. You are correct. The tech spec is only the top level of the water. It does not ensure the volume of the pond.

What we do is we do soundings of the pond. They go out and do soundings to find the bottom elevation. They do it so often and there are contour elevations that are done of the water in the pond. Then they use a computer program to determine the actual volume using the contour, the elevations in the areas to compute the actual volume of water that's in the pond.

Those contour elevations are in the UFSAR, so what we determine from the soundings that we take is compared to the volumes that is in the UFSAR. There is a limit for the total volume of the pond. That program is what we credit for maintaining the silt. There is a tech spec limit for the top elevation, but what we credit for the silting of the pond is this program where they actually compute the volume of the pond.

MS. FRANOVICH: And that's in the licensed-real application, Debbie.

MS. KEISER: Yes. That's what is described in Section 4.7.3 in the application.

MS. FRANOVICH: Okay, Debbie. Thank you. Sorry we didn't have a good answer for you from the Staff, but thank you, Debbie. Okay. Now I'd like to turn to my reviewers to present the results of their evaluation of the TLAAs: the first one governing neutron embrittlement of the reactor vessel. Jim Medoff was the leader. Jim, do you want to present the results of the Staff's review?

MR. MEDOFF: Hello. This is Jim Medoff again of the Materials and Chemical Engineering Branch of NRR. I was the lead reviewer for reviewing the time-limiting aging analysis for protection of the reaction vessel.

There are typically three TLAAs we looked at for protection of the reactor vessel. The first is a TLAA to protect the reactor vessel against pressurized thermal shock events. The second is to ensure that the reactor vessel materials will have adequate ductility during the extended periods of operation. We typically measure this in terms of the upper shelf energy values which are determined from chart impact test results of the vessel materials. The third is a time-limiting aging analysis on pressure-temperature limits for the reactor vessel. That's really one that relates to operation of the

reactor during its license periods.

Let me start off with the pressure-temperature limits. We did not require the Applicant to submit the analyses for the PT limits because typically the regulatory process for reviewing PT limits is to have licensees submit them for Staff review and approval six months to a year before the expiration date of the PT limits that are contained in the technical specifications for the plant.

Since the 10 CFR Part 54 requires you to do your review of the application consistent with the current licensing basis for the plant, we didn't see any reason to change that process. What will happen is the Applicant will submit the PT limits for the extended periods of operation prior to entering into them. The Staff will review them appropriately through the regulatory process that's consistent with 10 CFR 50.90.

The remaining two, the TLAA for pressurized thermal shock or PTS and the TLAA for ductility or in other words upper shelf energy or USE, the Applicant did provide the analyses and the relevant data in the application consistent with 10 CFR Part 54. It's required. They did the appropriate thing. The Staff has a database of relevant data from

the industry that relate to these assessments. We performed an independent assessment of the data using the appropriate calculations and the applicable rules.

The rules that are relevant to this are 10 CFR 50.61 for protection of the vessel against pressurized thermal shock and 10 CFR Part 50, Appendix G for evaluating the vessel materials for upper shelf energy. Related to these assessments is the reactor vessel surveillance program that's required by 10 CFR Part 50, Appendix H. They actually credit that program as one of their AMPs for the reactor vessel.

With regard to these assessments, we did make sure and included appropriate reviewers from the Reactor Systems Branch to make sure that the neutron fluences that the Applicant was projecting for the extended periods of operation were valid. We asked RAIs on the fluences, not with regard to the TLAAs but actually on the aging management program for the reactor vessel surveillance program. The Applicant provided all the relevant information we needed on the fluence methodologies and actually the data that inputted into the time-limited aging analyses. The Staff found the projected fluences for the reactor vessel materials to be applicable.

Going on with the independent assessments,

both the Staff's assessments and the Applicant's assessments were PTS and upper shelf energy demonstrated that the reactor vessel materials will meet the applicable screening criteria stated in the regulations for each assessment and that therefore, the reactor vessel materials would be protected during the extended periods of operation. So we didn't have any further need in our eyes to evaluate these programs further. We found the TLAAs to be acceptable for the periods.

MEMBER ROSEN: What sort of margin did you find through the screening criteria?

MR. MEDOFF: I have that. If you'd like a little bit of data.

MEMBER ROSEN: Yes. It goes a long way.

MR. MEDOFF: Okay. For PTS, the screening criteria are 270 degrees F for axial weld materials and baseline metals, plates and forging materials. For circumferential weld materials, the screening criteria are 300 degrees F. Now, I need to state that the limiting material in terms of the PTS is not determined how close you get to that. Well, it's really determined by the delta.

So for instance, if you have an axial weld that's at 260 compared to 270, that would be a ten

degree margin that they have. You might have a circ weld at 280. When you compare it to 300, it has a 20 degree margin, so even though the RTPTS for the axial weld is lower, it's actually the limiting material because the margin is less, the delta is less. That's really what we used to determine what the limiting material is for PTS.

MEMBER FORD: Jim, for instance, for McGuire Unit 1 using the 10 CFR 50.61 bounding color collisions, they are hitting on one of the welds the PTS criteria of 270.

MR. MEDOFF: We do not find that for any of the reactor vessel materials for PTS for McGuire.

MEMBER FORD: No. I'll get to that. If you let me finish my question first of all. In this table 4.2-5 in their application, they have 270 as the criterion, the analysis using 10 CFR 50.61 to be their RTPTS value which is the criterion and yet they credit the fact that their surveillance samples show an RTPTS of 225, and they say it's okay.

Now, surely you're mixing up apples and oranges there. You're looking at a bounding criterion and the other one is the actual data from the surveillance samples. Can you do that? I'm surprised.

MR. MEDOFF: Actually, the way we handle the vessel materials is the Staff always encourages them to use surveillance data if they are available for the heat of material in question. Not all of the materials in the reactor vessel are represented in the reactor vessel surveillance programs for the plants. They may be represented in some programs for sister plants where we then encourage them to use sister data. If you use the tables to establish the RTPTS, you might get a different value than you get for the --

MEMBER FORD: Surveillance status.

MR. MEDOFF: That you get for using the surveillance status. So we do encourage them to use the surveillance.

MEMBER FORD: But they are averaging about 70 degrees F difference between their surveillance data, the 10 CFR 50.61 color collisions on the average, about 70 degrees higher.

MR. MEDOFF: Than when using the tables.

MEMBER FORD: Yes. I guess my question to you is obviously you must have observed that. Did it give you any concern? The fact that they want to use a lower --

MR. MEDOFF: No. Actually what the rule

requires is if they have credible surveillance data and they have less margin using the surveillance data, they are required to use them as the basis for establishing the RTPTS value for the material in question.

MEMBER FORD: I'm not really so much concerned about what the rule says. It's more a question of what makes engineering sense. If in one case, you're using a bounding criterion. The 10 CFR 50.61 analysis, you can use that in one case. But you're allowed to use a less conservative value, this case, which comes out to the surveillance data. So they're able to choose which ever one that they would like to use.

MS. FRANOVICH: Barry Elliot is jumping at the bit to address your question.

MEMBER FORD: Go for it.

MR. ELLIOT: Jim has explained the process a little bit. I want to explain how we got there and why the number you could use is surveillance material. We set up criteria which must be established before you can use the surveillance data. You just can't use any surveillance data. It's specific criteria. It's in the Reg Guide 1.99, Rev. 2. It's in the PTS Rule.

If you can meet that criteria, then you

can use surveillance material. The reason for that is as you said the table of guidance is a bounding value. If you have actual data that actually represents your vessel that is much better than bounding data, then you should use it. This is what the case is here. They have proven to us using the guidance in our Reg Guide that their data is applicable to their vessel. So therefore, we let them use it.

CHAIRMAN BONACA: You said a precondition is that you meet the criteria.

MR. ELLIOT: Right. They met the criteria, and that's the basis for our saying they could use it. But there's criteria in the guidance they have to meet.

CHAIRMAN BONACA: Okay. Criteria, not necessarily the 270.

MR. ELLIOT: No. It's the criteria in guidance for the material. The surveillance material must meet this guidance.

MR. MEDOFF: This is credibility criteria in the Reg Guide and the rule for evaluating the data.

CHAIRMAN BONACA: The only thing I would like to ask you is this now. Not enough information in tables is a problem, but too much information.

MR. ELLIOT: But also, the issue here that

affects this is --

MR. MEDOFF: Right. I'm going to get to that later.

MR. ELLIOT: That's a very important issue.

CHAIRMAN BONACA: In fact, I received this at the last minute before I left to come here. This is an answer for additional information. We revise tables.

MR. MEDOFF: Right. I'm going to get to that.

CHAIRMAN BONACA: And all these tables look different from one plant to another plant and this table to this. So I'm very confused now.

MR. MEDOFF: I'm going to get to all of this.

MS. FRANOVICH: But before you start, Noel Dudley suggested I send that to you, so if that doesn't please you, I'll be sure to let Noel know.

CHAIRMAN BONACA: Not enough information is a problem. Too much information is also a problem.

MS. FRANOVICH: I understand.

CHAIRMAN BONACA: The thing is that I understood what you were trying to do here, but there was no correspondence in the form of the tables. So

I could not compare table to table.

MS. FRANOVICH: Right.

MR. ELLIOT: See, when you use the tables, you're going to get what we consider a bounding value. If you use surveillance material, your subject then results in the surveillance material.

MR. MEDOFF: And that's really specific to your vessel.

MR. ELLIOT: So that as more surveillance material comes out, it could impact where you are relative to the screening criteria and in fact it could put you over the screening criteria, not that it's going to put them over the screening criteria, but it's a part of the open issue.

MR. MEDOFF: Since Dr. Powers likes the data so much, I'm going to give him some values here. For McGuire 1, the RTPTS value that we calculated was 225. That's sufficient margin against a screening criteria for a longitude and weld of 270 degrees. Actually, this was based on use of credible surveillance data where I went into the reactor vessel integrity database, looked over the data. The data was credible, so we fully encourage the Applicant to use that data for that material. Actually, the McGuire 1 vessel for PTS was limiting relative to

McGuire 2 and either of the Catawba units.

For upper shelf energy, the limiting vessel is Catawba Unit 2. It has a limiting upper shelf energy of 51 foot-pounds. What the tendency --

MEMBER POWERS: In the criteria, there's 50.

MR. MEDOFF: That's why I brought up the issue of fluency. Remembering the ACRS comment from the Surry, North Anna ACRS meeting, one of the concerns was that if you were close to the screening criteria, if your fluency methods were slightly off and you had a slightly higher fluency, it could make you exceed the screening criteria if you were dealing with PTS or fall under the screening criteria if you're dealing with upper shelf energy.

That's why I emphasize that we did go to Lambrose Lois in the Reactor System Branch. We had them look over the McGuire and Catawba fluency methodologies. He did find their methods acceptable and that the projected fluences for extended period of operation were valid for the TLAAs. So right now I do not have any reason to question that 51 foot-pound value.

Even if they are off, and I'm not saying they are. I have no reason to say they are. If you

were below 50 foot-pounds what the rule would tell you to do is perform an equivalent margins analysis to demonstrate that you still had acceptable margins.

MEMBER POWERS: It seems to me that it's one worth flagging. They are going to end up doing a margins analysis on this plan by the end of life.

MR. MEDOFF: And that may be so, and they will do it if when they pull the next capsule it affects it and brings it under 50 foot-pounds. So it's adequately addressed in the rule and what they would be required to do.

MEMBER POWERS: See, that's what keeps it from going to the pyramids here, Steve.

MEMBER ROSEN: It's not the groundwater.

MEMBER POWERS: Well, if it went to the age of the pyramids, you might have to worry about the groundwater but not before.

MR. MEDOFF: With regard to the open item, it was really an open item that was issued for tracking purposes. The McGuire 1 reactor vessel has a weld heat that is common both the McGuire Unit 1 as well as Diablo Canyon Unit 2. It's in both surveillance programs. The licensee for Diablo Canyon just pulled the capsule, so we really issued an open item for tracking purposes and we asked the Applicant

to submit the data just to ensure and confirm that the data won't invalidate their TLAA results for the reactor vessel.

MS. FRANOVICH: And that's just for McGuire Unit 1.

MR. MEDOFF: Right.

MS. FRANOVICH: Any questions on the USE and PTS TLAAs?

CHAIRMAN BONACA: Except some of these tables, the Section 4 would be revised. Right? There are some changes.

MR. MEDOFF: Well, for McGuire 1 and only for the relevant heat.

CHAIRMAN BONACA: Okay.

MS. FRANOVICH: Thank you, Jim. Okay. Jim, we appreciate your presentation. The next slide addresses metal fatigue. John Fair is our presenter on the Staff's evaluation of this TLAA.

MR. FAIR: Yes. I'm John Fair from the Mechanical Engineering Branch and with me to discuss one of the issues would be Barry Elliot. In the area of metal fatigue in the SER you'll see four items that were prominently addressed. One of them is the thermal fatigue management program which is a program that they count the number of design cycles at the

plant that were used in the fatigue analyses of the components and compare those to what was used in the original design to make sure they don't go outside the design limits during the period of extended operation. This is similar to the programs used at other facilities.

I'll just mention that there was one item that came up in the review of this. We asked the Applicant to tell us which cycles that were specified in the FSARs for Catawba and McGuire they were actually tracking. We pretty much agreed with which ones they decided they didn't have to track because they were not significant or other reviews had shown they had not been significant. However, there was one item that had to do with the charging system let-down and charging flow changes which when we went back and looked at our evaluations in NUREG 6260 which is related to the environmental effects we found that they did have a significant fatigue usage when environmental effects were included in the evaluation of those transients.

So we asked the Applicant why they considered the fatigue insignificant for these transients at Catawba and McGuire. The Applicant came back. We had a meeting with them. They brought in

the actual design calculations. From reviewing the design calculations, the analysts at the time took a look at the delta T changes for these transients. Based on their judgement, they made the judgement that you would not have a significant stress and therefore would have an insignificant fatigue usage on these. That's the basis that they're not tracking these particular transients.

Another area that we looked at in this was there's a series of Westinghouse topical reports that Staff had previously reviewed and we had identified some action items in. This Applicant did not reference these reports and did not incorporate them into the LRA. However, we did ask questions on the action items just to make sure we had the issues covered.

The Applicant reminded us on several occasions that they did not incorporate these and did not necessarily agree with the action items, but they did provide us responses on these. On one of them which is the pressurizer WCAP report, we do have an open item which they have given us subsequent information on to resolve. I'll discuss that in a minute.

The third major area we looked at was

environmental fatigue. Again, we did the same thing we've done on past applications which is requested that they look at the six components in NUREG 6260 and do an assessment of those environmental fatigue. Again, we have an open item on that which I'll discuss in a minute. However, the Applicant on this one has given us a commitment to do the evaluation prior to the period of extended operation, so they have not done the up-front evaluation but have given the committment to do the evaluation prior to the period of extended operation.

The fourth item that we looked at in this section had to do with underclad cracking. This was not addressed in the LRA. However, we did ask an RAI on this item. As a result of the RAI we did identify an open item.

The next thing I'll get into is a discussion of the open item. The first one has to do with this Westinghouse topical report. The Westinghouse report identified a number of pressurizer subcomponents that had high fatigue usage and had a potential for exceeding a usage factor of one during the period of extended operation based on a simple extrapolation. We requested that the Applicant provide us the actual fatigue usage factors for these

components and tell us whether they've addressed the issues identified with in-surge and out-surge and to give us some kind of discussion on the impact of the environmental fatigue issue on these components.

The Applicant did say that they had addressed the in-surge and out-surge issue. They provided us with the design-basis fatigue usage factors for the subcomponents. They have also stated that their thermal fatigue management program is intended to make sure they don't exceed the number of design cycles during the period of extended operation so that those usage factors won't be exceeded. However, they did not do an assessment of the environmental impact, so the Staff has decided that we will do the assessment for them on these components and discuss it in the final safety evaluation report.

What we intend to do is just do a fairly simple assessment and identify those components we think might have a problem in the period of extended operation. Similar to what we have done for other Westinghouse plants which are Turkey Point and Surry, North Anna is to stick with the pressurizer surge line nozzle as the leading indicator for fatigue usage due to environmental effects and if that particular sample shows a problem during the period of extended

operation, to request that they go back and relook at these particular components in the pressurizer.

The next open item was the evaluation of the environmental fatigue effects. Again, as I said previously, the licensee chose to make a committment to do the evaluation prior to the period of extended operation. This was the same committment that they had made on Oconee.

Some licensees are doing the evaluation right now and giving us the results and others are making the committment to do it prior to the period of extended operation. So in lieu of them doing the evaluation now, we requested that they give us the design usage factors so that we can make some kind of internal assessment of the significance for the period of extended operation. We will discuss that in the final safety evaluation report.

I'm going to jump the issue on underclad cracking because Barry Elliot is going to discuss it. The next item that I had was the update of the FSAR supplement. Basically the FSAR supplement and the license renewal application had a very skimpy discussion of the thermal fatigue management program. We requested them to give us a little more discussion of that and put it in the FSAR supplement. They have

complied with that in their recent submittal, so that issue would be resolved.

We also asked them to discuss the committment to do the evaluation for the environmental effects prior to the period of extended operation. They've also supplied that additional information for the FSAR supplement, so that issue will be resolved. The final issue in this area is the underclad cracking. I'll turn it over to Barry.

MS. FRANOVICH: But before you can turn it over to Barry, I just wanted to indicate that for these Section 4.3 open items the only one that remains open at this point is the underclad cracking concern. That's with regard to McGuire 2. I believe the handout indicates McGuire 1, but it's really a McGuire 2 concern.

The other three open items that John Fair just discussed are confirmatory at this point. In fact, I believe they're resolved. I think we've reviewed the interim response and found it acceptable, so these are resolved at this point. With that, I'll turn the discussion of underclad cracking over to Barry Elliot.

MR. ELLIOT: Thank you. Thank you, John and thank you, Rani. Barry Elliot, Materials and

Chemical Engineering Branch.

Underclad cracking is an issue for forgings which have course grain, microstructure and have clad that has been applied using high heat input. It's a fabrication process problem. Guidance in this area is given by the Staff Reg Guide 1.43. This is an issue that we raised with McGuire and Catawba. We raised it for all four units.

They were able to present data and information on all the units except for McGuire 2 that precluded this type of cracking for those other units. McGuire 2 couldn't present that type of information, so we had to assume that this type of cracking could appear. In order to resolve this issue, the Applicant needs to perform a fatigue analysis of crack growth and neutron eradiation embrittlement.

For this case, neutron erradiation embrittlement was really not a concern. I looked at the forgings. The RTPTS values at 60 years for these forgings only go to 150 degrees Fahrenheit, so that shouldn't be a concern. The real issue here would be the need to provide their own analysis or the use of topical reporting analysis and to show that the fatigue transients that are assumed in the analysis would bound the 60 years of the life of the plant.

Any questions?

MS. FRANOVICH: Okay. Thank you, Barry. With that, we'll go on to the next presentation which is Section 4.7. It's actually 4.7.2 or 1 of the SER. Simon Sheng was the lead reviewer of this TLAA governing leak before break. With that, I'll turn the presentation over to Simon.

MR. SHENG: Good afternoon. This is Simon Sheng with the Materials and Chemical Engineering Branch. Currently attending a three month bootcamp training for -- in the project.

Okay. When we review the leak before break issue, first of course we want to know whether they have any active degradation mechanism and then of course there's the thermal aging associated with the cast authentic standard steel material. For this issue, basically we checked their previous analysis that they applied for the LBB application probably more than ten years ago. In that analysis, there's another issue of course because in that analysis they show only 40 years of fatigue cycles in their crack analysis. So we also need to review these items very carefully to make sure that it's also good for the 60 year application.

Let me address the thermal aging effect

first. When we looked at the original analysis, we found out that in the very beginning they did not use the transient properties for the material. In other words, the thermal aging will saturate and reach almost a constant property once it's beyond certain years of operation. Fortunately they used the bounding material property which is even lower than the saturated properties in the original analysis. That's why this thermal aging effect is not a problem in the extended period of operation.

In the review, we're also checking their plant specific, or I should say their Westinghouse specific data against the data published in the NUREG by Argonne. The data is comparable, so we are satisfied that they used a low enough material property, fracture toughness property in their original analysis.

Of course another degradation mechanism is probably the V.C. Summer issue. Our Branch Chief Bill Bateman has already addressed that thoroughly, so I'm not going to talk about anything there. I just want to say for that fatigue crack growing for 40 years that they did not choose to revise the analysis but assumed a 60 year fatigue cycles. Instead, they relied on the thermal fatigue program by actually

counting the fatigue cycles along the operation future years. The reason that they can do that is because they are very conservative in their original analysis assuming they are going to accumulate a lot of certain cycles yearly but looking back they have plenty of margin. So they choose to do it this way.

Suppose that in the future by actual counting they found out that they are going to violate the original assumptions. They would consider a lot of options while they are including revised analysis by using the realistic assumptions. Basically they have addressed all the important points, and we are satisfied. Any questions?

MS. FRANOVICH: Okay. Thank you, Simon. Before we go to our concluding remarks, I wanted to touch base on the pond volume TLAA. I've looked at the application and confirmed what Debbie Keiser told the Staff and the Committee a few minutes ago. On page 4.7-4 of the license renewal application, they talk about the sounding.

It says "The UFSAR includes a committment that soundings will be taken around the SNS. There will be an intake structure at five year intervals to assure that sediment deposits will not adversely affect the operation of the standby nuclear

servicewater system. Although an earlier calculation for the volume of the pond was documented, more recent calculations have been performed which validate the volume of the pond."

If you look under the parameters monitored or inspected element, it says "This aging management program, the standby nuclear servicewater pond volume program requires a topographic survey of the pond to determine the topography of the bottom of the pond. Calculations are then performed using the survey data to verify that pond volume is adequate." So I didn't know that off the top of my head, but I checked. It's in the application.

MEMBER ROSEN: Is that something they're going to begin during the extended term or something that they're going to begin now?

MS. FRANOVICH: Would you --

MR. GILL: This is Bob Gill. That is a current program that's currently in the FSAR. If you look at Appendix A for Catawba, you'll see a summary description of that program. We do it today.

MEMBER ROSEN: Thank you.

MR. GILL: Actually, it's part of initial licensing 20 some years ago.

MS. FRANOVICH: Described in your UFSAR

today.

MR. GILL: It's in UFSAR today, so it's a current program.

MS. FRANOVICH: Okay. Having touched on that, I'd just like to bring our presentation to a close with a few concluding remarks. Staff still has work to do. We have to focus on open items and confirmatory items. Duke's official response to all of our SER open items is anticipated by October 28 which is just a few weeks away.

The hearing process continues. As I indicated, we're in abeyance now on the remaining SAMA contention but pending word back from the Commission on clarification. To what extent that contention was partially admitted, we're still officially in the hearing process. The final SER will be issued on or before January 6 of next year. That concludes the Staff's presentation unless there are any other questions at this point.

CHAIRMAN BONACA: Any other questions for the Members, comments? Thank you. I certainly would like to congratulate you personally and the Staff for an excellent presentation. It was very informative. I think I'm conveying the perspectives of the Members here. So I thank you again for that.

MS. FRANOVICH: Thank you for the opportunity.

CHAIRMAN BONACA: Now what we're going to do is go around the table and get from the Members their views of what they heard today. Then at the end, we'll decide how to address the full Committee. We don't need the transcriber anymore. Okay. We can just turn it off.

(Whereupon, the foregoing matter went off the record at 4:00 p.m. and went back on the record at 4:01 p.m.)

CHAIRMAN BONACA: Let me just turn the transcription on again. Let me give you first of all my sense before I get your further comments. As you know, we have to talk about what we're going to do with the full Committee. Do we have to have a presentation of the licensee and the Staff? My judgement is that we do not. I think I would like to just prepare a summary and present it to the Committee when we get to the full Committee in the later part of this week.

The reason is I feel that the application is quite effective and complete. Although there are certain issues we have to discuss. Also the SER is effective. A complete review has been pretty

thorough, so that is my judgement. I would like to just propose it to you now and then go around the table and see what issues we feel we need to bring up to the full Committee and how we should handle it too. So I will start with you, Peter.

MEMBER FORD: I echo, Mario, your views. I was very encouraged by the format of this meeting in comparison to Peter's -- I got a much better idea of what the assumptions and what the facts are behind some of the Staff's conclusions.

I don't see any urgent safety concerns about license renewal for specifically McGuire and Catawba plants as they apply to degradation of structure materials. Those degradation issues are covered adequately in the current aging management programs. I remain concerned that those programs are industry motivated as they should be, but they are reactive in nature.

It'll be 20 years before these particular plants go into license renewal, and things will happen in that 20 years; other things will crack, other things will corrode, et cetera. I hope that the industry as a whole have the capability of maintaining that push to come into a proactive mode for the aging management programs. As far as these plants are

concerned, I'm encouraged by the fact that the licensing nature is such that we can take into account those improvements and plans.

I'm also concerned about the rationale for one time inspections. Again, that's mitigated by the fact that once the need for those or the inadequacy of those one time inspections if it becomes apparent then there is a licensing process to cover it. I agree with your finding, Mario, that there is no big concern at least from my point of view.

CHAIRMAN BONACA: Thank you. Steve.

MEMBER ROSEN: Yes, Mario, thank you. I agree as well that there are no safety concerns at the moment, but I do have a number of specific points I'd like to offer. In particular, I thought the license application provided on CD-ROM by the way to me was a great help and in very good shape. The Staff's SER was also very well done. I remember when we complained about the degree of information in it. It is now very nicely complete. I wish it was on CD-ROM. It wasn't, but it has the information.

I had a few items here, some very good. I'd like to offer my kudos to the Staff on the pressure of picking up the problem with the pressurizer nozzles needed for the post-fire safe

shutdown. The fact that it has already been put into the interim Staff Guidance, that is a good demonstration not only of an alert reviewer but a good process to pick up the value of an alert reviewer for future plans and to look at whether or not this needs to be back-fit to past plants. All of that I can't say enough about the very complete response.

In the middle of places where I'm a little bit concerned, the fire protection issue, in particular, the jockey pump issue and the question of crediting fire barriers in the turbine building. Those are matters that I know Duke is still working on responses to those issues. I will follow that with a great interest.

I also had a feeling that we have perhaps a problem in the way we review things. I'm not sure. Let me just lay it out. We, the Staff, use the P&IDs to basically focus the scope of the review. I know from having been there and done that, that there's a lot of subsidiary documents that are in the engineering mix at the plant, for instance, instrument loop diagrams, the piping isometrics, the electrical elementaries, et cetera. It's not limited to those three, but beyond. If they were reviewed by the Staff, it might come to some additional conclusions

about what components need to be in the scope and what components may not need to be in the scope.

So just looking at the P&IDs, it might be possible that we could be missing something. I don't know. I'm uncomfortable about that and raise that issue as for something for Staff to think about perhaps and might want to do something different. So that's in the middle.

On the other side, I am concerned about the question of groundwater sampling. In my view, the Staff should require a groundwater sampling program to continue to confirm the basis for the subsurface structural lifetimes. It seems one of those things where the cost benefit would be very positive to do that. It's very easy to do and it's very important. If you find the wrong answer out, you'll be very glad you did if you find it out promptly. So those are my conclusions. I thought the review was very useful, and Staff's presentation was very strong.

CHAIRMAN BONACA: Thank you, Steve. Graham.

MEMBER LEITCH: Let me say at the outset I'd like to echo the positive comments that have been made about the Staff's presentation. I thought this was very well done, very well organized, formatted

very nicely. It made it very understandable and logical.

Concerning the application itself, I was initially quite concerned with the large number of open items, 41. As the discussion went on however that concerned lessened. It appears as though many of these are well on their way to resolution. Those relatively few that are not, I think there are some honest differences of opinion that are still going to be resolved. But it seems as though there are good legitimate reasons for those differences and not just hard unreasonable positions being taken on one side or the other. I think there's good movement in that direction to resolve these issues.

Like Steve, I was concerned about the open issues in the fire area. Again, it appears those issues are well on their way to resolution but not yet resolved. The data provided in Section 4, the time-limited aging analysis, I thought was very useful and gave me a lot more confidence than what I saw in the previous application because there were specific numbers and data there that were really helpful.

If you were asking, Mario, for us to give comments as to how we proceed from here, I agree with your thought. I notice there's a spot on the agenda

for the full Committee meeting Thursday or Friday, I forget which, to talk about this issue.

CHAIRMAN BONACA: We'll have some intermediate time because they said maybe there are so many open issues there may be something we may have to bring up to the full Committee, but clearly we're flexible on their time. It can be shrunk down. It will be welcomed by the Chairman of the Committee that we give back some of their time.

MEMBER LEITCH: I think really a brief summary by you as to what went on at this meeting would be adequate for the full Committee meeting at this time. I don't see any particular reason to be writing an interim letter on this matter. I think if we were going to write any letter, not that I'm proposing that we do, but I think one thing that we need to signal in any letter we write with regard to the license renewal program, and I think one issue that perhaps has come into more clear focus as a result of today's discussion is this tremendous amount of future inspection activity that is out there.

I think the Commission needs to understand that this is a significant workload for the future. And as we approve these license renewal applications, the work is far from done. There's a significant

amount of inspection activity out there. I know from what PT says they're already working on that, but I think we need at some point in time, I don't say that it necessarily relates to Catawba and McGuire, but perhaps some of these periodic discussion we have with the Commission we should make sure that they understand that --

CHAIRMAN BONACA: Maybe it's an item that we should bring up in a separate presentation.

MEMBER LEITCH: That there's a significant effort I guess.

MR. KUO: And I would suggest that as soon as we get the Inspection Procedure 71003 ready, we will come to the Committee and give you a briefing on that.

CHAIRMAN BONACA: We do have a commitment to address the request by the Commission. That may be the time to include a note from this organization.

MEMBER LEITCH: That's right. I think that's a good time to bring that up as well.

MEMBER ROSEN: Mario, the only thing I would add to that is I think we need with the full Committee to characterize the comments that are being made around the table in terms of some of these issues. I think that this is really a subcommittee of

the full Committee. Sometimes we have eight members out of the 11 come to these meetings, but here we really only have five members. What I'm trying to say is don't try to do it too quickly. The rest of the other Committee members need to hear some of this discussion on the key issues we've raised.

CHAIRMAN BONACA: Sure.

MEMBER LEITCH: That's all I had, Mario.

CHAIRMAN BONACA: Dana.

MEMBER POWERS: The first point I want to make is it's relatively important that we take the opportunity as we go through this license renewal for McGuire and Catawba to make sure the ACRS as a whole understands these plants well because the plants have the potential of coming up in deliberations in connection with other subjects and their possible role. So let us not downplay and creep to tersely the discussion of these plants.

Some things have appeared in this discussion that I think have generic interest to the Committee. I comment particularly on the safety culture implications of some of our discussions of the fire protection surveillances and what it might mean for the future aging management programs here. I note that we continue to see fire protection play a role

but may not be entirely consistent with what we currently perceive with this significance.

That's it. Many members have brought up points that I don't need to reiterate here. I will say that I personally think we need to discuss a little more this business of breaking down components like fans to get at the housings and whatnot. I grow itchy over this as perhaps circumventing the Commission's intent when I wrote the rule. Maybe it would be worth discussing that a little more.

CHAIRMAN BONACA: And the concern there would be looking at the --

MEMBER POWERS: Well, the comment made by the Applicant here that a fan is a fan is a fan. You have to break it down resonated with me. If I recall the language of the rule, I think whomever wrote it said a fan is a fan is a fan and didn't break it down.

CHAIRMAN BONACA: It also says a pump is a propeller and is a casing in this.

MEMBER POWERS: Well, they might well do that. I'd be interested in a little more discussion of that. There may be a good reason that I think a fan is not a fan but a collection of parts and whatnot. I would not like to circumvent or play games with what the Commission's intent was, whomever wrote

the rule.

Finally, I'll note that I'm not at all concerned with the potential changes in the groundwater over the coming 40 or 50 years affecting concrete structures at this particular site. If it was Texas, I'd be very concerned, but here, no problem.

MEMBER ROSEN: Most of what we're concerned with in Texas is above-ground.

MEMBER POWERS: They haven't got any water above-ground right now.

MEMBER ROSEN: The critters in the water are above-ground you want to be concerned with.

MEMBER POWERS: That's true. And the critters that walk the land in Texas you want to be concerned about too.

MEMBER ROSEN: Them too.

MEMBER POWERS: Especially the two-legged variety. Birds. I'm talking about birds.

CHAIRMAN BONACA: As far as my perspective on this, again, I voiced at the beginning the belief that was a very good presentation. I think it was a good application too. I must say that I came to the conclusion after thinking that maybe there were some problems in here because there were forty-plus open

items there that there is no way to correlate number of open items with the quality of the application. We just can't do that. Actually, I think in some cases some of the open items are important. They're stimulating and presenting different perspectives. I appreciate that.

A concern I really am developing somewhat is with the lead time over the time before we enter into the license renewal period. A lot of things will happen over the next 20 years, not only the programs will have to be revised. They may be totally different because the realities that are going to confront them are going to be very substantial and different from now.

Therefore, somebody mentioned the word bow wave, I believe, was that you, Steve, of commitments that may come and have to be addressed in the future. I'm not sure that there is a full appreciation for what that may mean for not only the Applicants but most of all the Staff that's going to be involved in all of these applications. It's going to be a huge amount of work.

MEMBER ROSEN: I'm more concerned with the Staff than the Applicant. I think Duke, for instance, answered the question of how they are going to manage

these commitments quite adequately. It's really how they manage a lot of things that they commit to now. It's part of their system.

They'll document these things internally. They'll track the hell out of them. They'll get the lead on them. They'll get people assigned. They'll do all those things. They have seven plants to do it in and the fairly stable workforce.

On the other hand, the NRC has not nearly as stable a workforce. It has 100 plants that will soon have the license renewal in my opinion. It's a bigger problem for the Staff than for the licensees.

CHAIRMAN BONACA: The last comment I would like to make is regarding the timing for providing the SER with open items to the ACRS. You may want to pay attention to it. I find that when you have a big, large number of open items and then they get closed between the moment when we see the SER and the moment you come here, we're coming with all kinds of signals.

I was looking at the reactor vessel internals, and I had a real problem of having just Oconee being inspected for all the other units. So I spent a little time looking back and going back and confirming this thing. Then I come here and find it was an issue and it was resolved. I had spent quite

a bit of time running around about nothing.

MS. FRANOVICH: That's a good comment. We'll take that back. I don't think it would be much burden on the Staff to just keep the ACRS apprised of the status of these open items, so we'll take that back.

CHAIRMAN BONACA: Or, I mean, I understand you have firm commitments you are making for certain dates. If you could move the meeting by one month, you probably would capture most of the items and wrap them up to where now there are only 11 out of the original 43. It's just a suggestion. I understand you have scheduling problems too.

MR. KUO: Dr. Bonaca, just one thing that we are looking at with the schedule. Originally for uncontested application or in the schedule it is 25 months. Actually, this plant's schedule is issued as 25 months, but since then we got the SRM from Commission that shortened this schedule from 25 to 22 months. In their rationale, they say in the schedule you saved us three months for us to make our decision.

Therefore, now that we are authorizing the NRR Director to issue the license, therefore we can cut three months. In reality, that's not so because in those three months we are not sitting there idle.

We have other things to do. We have to prepare a license package. We have to do a lot of other things. That really cut us down by one to two months. We will have to somehow find a place to get that to one to two months.

So in one way we are thinking about it to change the up-front schedule. Right now we have eight months from the date we received the application to the date we issue RAIs. That's eight months. That might be a little to liberal, so we probably can push that a little bit. Doing it that way, we could probably save a little time at the end, so the ACRS meeting is not going to be so pressing.

CHAIRMAN BONACA: Yes. One last thing is we were asked about the efficiency and effectiveness of the Commission admitting. I think it is going to be made out of a number of conformance. One of them certainly is not collapsing any further the size of the applications because the less information we get more RAIs are going to be asked and more time it is for all of us to review it.

So as you work with industry you might try to focus on what is an ideal format that is concise enough but provides sufficient information that maintains the number of RAIs to a limited number. I

mean, you've gone up from more than 100 from the previous application to 207 for this one. I don't know what the factors are, but in part I think it's the aggressive review that you gave to this one. With that, I think again it's a good application and good SER, so I'm looking forward to having the final SER coming to us in January.

So let me again complete this by saying what I sense from the Members the way I'm going to handle it is I'm going to prepare a summary. It may be a 20 minute summary. Then I'll have your help doing the presentation to the full Committee. I'll brief the full Committee on the salient issues of this application and SER. Then we will not have an interim letter at this time.

MEMBER LEITCH: Would it be your intention that a few of the key Staff people would be at that presentation?

CHAIRMAN BONACA: It may be worthwhile to have as a medium the Project Manager here present so that I can rely on you for specific details.

MS. FRANOVICH: I'd be delighted.

MEMBER ROSEN: It's always been useful in the past if we can impose on the Applicant to have a few key people who might want to listen to the full

Committee discussions too because some new things come up.

MS. FRANOVICH: Is there an ETA of the time?

CHAIRMAN BONACA: I'm not planning to have a full presentation with slides or anything. It'll be simply a summary of what happened today.

MS. FRANOVICH: Okay. But that will be two days hence on Thursday.

PARTICIPANT: It is right after lunch.

MS. FRANOVICH: Right after lunch. Okay. I'll be available.

MEMBER POWERS: Will you be on the record?

CHAIRMAN BONACA: Yes.

MEMBER POWERS: I suspect the licensee can probably just look at the record.

CHAIRMAN BONACA: Yes. I think so. All right. With that, I'll for ask any other comments at the end of this meeting. Okay. Off the record.

(Whereupon, the above-entitled matter concluded at 4:25 p.m.)