Official Transcript of Proceedings

NUCLEAR REGULATORY COMMISSION

Title: Advisory Committee on Reactor Safeguards
Plant License Renewal Subcommittee

Docket Number: (n/a)

Location: Rockville, Maryland

Date: Tuesday, April 19, 2016

Work Order No.: NRC-2326 Pages 1-104

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

(ACRS)

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PLANT LICENSE RENEWAL SUBCOMMITTEE

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TUESDAY

APRIL 19, 2016

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ROCKVILLE, MARYLAND

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The Subcommittee met at the Nuclear Regulatory Commission, Two White Flint North, Room T2B3, 11545 Rockville Pike, at 1:00 p.m., GORDON R. SKILLMAN, Chairman, presiding.

COMMITTEE MEMBERS:

GORDON R. SKILLMAN, Chairman

PETER RICCARDELLA, Member

RONALD G. BALLINGER, Member

HAROLD B. RAY , Member

DESIGNATED FEDERAL OFFICIAL:

KENT HOWARD

A G E N D A

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P R O C E E D I N G S

1:00 p.m.

CHAIRMAN SKILLMAN: Ladies and gentlemen, this meeting will now come to order. I'm Gordon Skillman. I'm Chairman of this plant license renewal subcommittee. The Subcommittee will review the license renewal application for LaSalle County Station Units 1 and 2. ACR members in attendance are Dr. Ronald Ballinger, the distinguished Harold Ray, past ACRS Chairman, Dr. Peter Riccardella and myself. Kent Howard of the ACRS staff is the Designated Federal Official for this meeting.

Should you be concerned about quorum, we meet our quorum with at least two. Please know that there's another meeting going on next door. It is the Westinghouse Full Spectrum LOCA meeting, and an awful lot of our members are over there. That meeting will probably go into the evening.

You should also know that we have six meetings this week. This is the second today and we have to meetings to go into Friday evening. So this is a very busy week for the Subcommittee members. So you might see some turbulence. It's

not about LaSalle. It's just a lot of busyness going on on the ACRS this week.

This afternoon, we will hear presentations from the Division of License Renewal Region III, and from Exelon Generating Company regarding this matter. This Subcommittee will gather information, analyze relevant issues and facts and formulate proposed positions and actions as appropriate for deliberations by the Committee.

The rules for participation in today's meeting have been announced as part of the notice of this meeting previously published in the *Federal Register*. We have not received written comments or requests for time to make oral statements from members of the public regarding today's meeting. The entire meeting will be open to public attendance.

There will be a phone bridge line. To preclude interruption of the meeting, the phone bridge line will be placed in a listen-in mode during the presentations and committee discussion. A transcript of this meeting is being kept and will be made available as stated in the *Federal Register* notice.

I therefore request that participation in this meeting, participants in the meeting please use the microphones located throughout the meeting room when addressing the subcommittee. The participants are requested to please identify themselves and speak with sufficient clarity and volume so that they can be readily heard. I also request that you please silence your electronic devices.

We will now proceed with the meeting and I call upon Chris Miller to begin the presentation. Chris.

MR. MILLER: Thank you Chairman Skillman and members of the ACRS. I'm Chris Miller, Director of the Division of License Renewal, and first of all I want to just thank you and the members for your dedication to this. I know it's a very busy time. We've asked you for some additional reviews.

Kent's over there smiling, but he knows that we've been putting some burden on your time. So I really appreciate the dedication you all have, and I know you're stretched a lot of different ways. But thank you for the support that you gave

us on these.

Part of the team sitting here net to me is Yoira Diaz. She's our Safety Projects branch chief. Behind me is Brian Wittick, and he's the branch chief from one of our technical branches. We also have in the audience a number of the technical review staff from the Division of License Renewal, who have participated in this review.

Presenting for us today will be Jeff Mitchell, the license renewal safety project manager, and Dr. Stu Sheldon, Region III inspection lead. We look forward to a productive discussion today while presenting the safety evaluation report with open items for LaSalle County Stations 1 and 2.

The staff issued the SER with open items on February 29th, 2016, with two open items. The two open items are related to the actions to be taken in the event that certain augmented inspections of welds result in limited coverage. These issues are summarized in the SER with open items. We will be presenting the details regarding both items this afternoon.

The staff is prepared to discuss these

and any other areas of their review during the presentation and during the question and answer session. At this time, I'd like to turn the presentation over to Mike Gallagher of Exelon, the Vice President for License Renewal Projects, so he can introduce the team and their discussion.

MR. GALLAGHER: Okay, thanks Chris. All right good afternoon. My name's Mike Gallagher and I'm the Vice President of License Renewal Projects at Exelon. I have 34 years of nuclear power plant experience all at Exelon, and have been working on our license renewal projects since 2006.

Slide 1 please. So before we get into today's presentation, I would like to introduce the presenters. To my right is John Kowalski, and John is our Engineering Director at LaSalle. John has 24 years of nuclear power plant experience, including the last 18 at LaSalle.

To John's right is Paul Weyhmuller, and Paul is our license renewal technical manager for the LaSalle License Renewal Project. Paul has 33 years of nuclear power plant experience including working on Exelon's license renewal projects since 2011.

To Paul's right is Andy Schierer, and Andy is the LaSalle Engineering program manager, and he has eight years of nuclear power plant experience, all at LaSalle. To my left is John Hufnagel, and John is our project licensing lead. John has 36 years of nuclear power plant experience, including working on Exelon's license renewal project since 2005.

In addition to our technical support, which we have in the audience, we have Bill Trafton, and Bill is our Site Vice President at LaSalle.

Slide 2 please. This slide shows our agenda for the presentation. We will present to you some background information about the station and highlights of our license renewal application. Then we will present the open items in the SER. So we believe we have developed a robust, high quality license renewal application and we've also developed effective aging management programs to ensure the continued safe operation of LaSalle.

We appreciate this opportunity to make the presentation, and look forward to answering any questions you may have. I'll now turn the

presentation over to John Kowalski. John.

MR. KOWALSKI: Thanks Mike. Slide 3 please. Good afternoon. My name is John Kowalski. I'm the Engineering Director at LaSalle County Station. LaSalle County Station Unit 1 and 2 are GE boiling water reactors with Mark II containments, and they are owned and operated by Exelon. LaSalle County Station is located approximately 55 miles southwest of Chicago.

Slide 4 please. This slide shows an aerial view of LaSalle County Station. On this slide you can see the reactor building, auxiliary building and turbine building, which are located in the center of the picture; the intake flume from the cooling lake to the lake screen house; the discharge flume, which goes back to the cooling lake.

There's a submerged pond under a portion of the cooling lake that extends under the intake flume, which is LaSalle's safety-related ultimate heat sink. This is shown by the dotted line in the photo, the independent spent fuel storage installation and the 345 kilovolt switch yard.

CHAIRMAN SKILLMAN: John before you change, a question please. I'm on page 1-6 of your license renewal application. No need for you to look it up. The sentence is "Normal heat sink cooling for the station is provided from a perched cooling lake of 2,058 acres."

I looked up perched and I figured well maybe the stock it, and then I said no, they don't put perch in there. They've probably got something. Then I looked up perched like bird sitting on a perch, and I didn't find any definition in Webster's of "perched," that caused me to understand what that word means. Please tell us what's perched.

MR. GALLAGHER: Okay. What we meant by that Dick was that -- Mr. Skillman is that it's built by a berme. It was not dug into the ground. It's a bermed sides and --

CHAIRMAN SKILLMAN: And there's a Webster's definition that means raised up --

MALE SPEAKER: Elevated.

MR. GALLAGHER: Yes, yes. So you know like --

CHAIRMAN SKILLMAN: I was going for the

fish.

(Laughter.)

CHAIRMAN SKILLMAN: Okay, thank you. That was one down. It's going to be a tough day, right.

MR. GALLAGHER: I think we wanted to expand our use of the English in the application so --

CHAIRMAN SKILLMAN: Thank you.

MR. KOWALSKI: Okay. Slide 5, please. This slide provides an overall of LaSalle history and some major station improvements. LaSalle was initially licensed in 1982 for Unit 1 and 1983 for Unit 2. Each unit was initially licensed for a rated thermal power of 3,323 megawatts thermal.

A five percent increase in rated power on both units was performed in the year 2000. In 2010 for Unit 1 and 2011 for Unit 2, a 1.65 percent measurement uncertainty recapture was implemented, which increased the thermal rating on each unit to their current rating of 3,546 megawatts thermal.

Exelon has also continued to make substantial improvements to LaSalle for long-term operation, such as a noble metal chemical addition,

hydrogen water chemistry, independent spec fuel storage installation and main power transformer replacements.

LaSalle has operated on 24 month fuel cycles. The station capacity factor was 91.9 percent in the year 2015. The license renewal application was submitted on December 9th, 2014. Our current licenses on LaSalle expire on April 17th, 2022 for Unit 1 and December 16th, 2023 for Unit 2.

I will now turn it over to Paul Weyhmuller who will present to you the highlights of the license renewal application.

MR. WEYHMULLER: Thank you, John. Slide 6 please. Good afternoon. My name is Paul Weyhmuller. I am the LaSalle License Renewal Technical Manager. I'll discuss the highlights of our license renewal application focusing on the aging management programs, specifically GALL consistency, our commitments and the exceptions that we have taken to the GALL.

Slide 7, please. In preparing the application, Exelon used industry and NRC guidance to make our application as consistent with GALL as

possible. Our submittal was based on guidance provided in both NUREG-1800, 1801 Revision 2, as amended by interim staff guidance as described in the LRA located in Section 2.1.4.

The aging management programs were developed incorporating lessons learned from previous Exelon projects, as well as benchmarking industry LRAs. The aging management programs were also developed using insights from industry RAIs. There are 48 commitments for the implementation of license renewal at LaSalle.

46 commitments are for the implementation of individual aging management programs. One additional commitment assures continuance of the operating experience program improvements related to aging management that were implemented prior to the LRA submittal, in accordance with LRISG 2011-05, ongoing review of operating experience.

The final commitment is for a specific aging management activities for installed slip joint clamps on the Unit 1 jet pumps. This commitment requires revised analysis for higher acceptance fluence value or taking other corrective

actions such as repair or replacement of the clamps prior to exceeding fluence limiting values currently projected to occur near the PEO.

The commitments will be captured within the license renewal UFSAR supplement, and the station commitment tracking database and managed in accordance with 10 C.F.R. 50.59 and the commitment management program which is based on NRC-endorsed NEI99-04 process.

The table shown on the slide provides a breakdown of aging management programs in regards to consistency with the GALL. This summary table also provides the numerical breakdown for existing and new amps. There are only six programs with exceptions and an overall total of nine exceptions. The following slide summarizes these exceptions.

Slide 8, please. This table shows a summary of exceptions taken as part of our LaSalle LRA, identifying the program, the exceptions taken and the justification for the difference. For each exception we have provide an alternative to the recommendation in GALL. Supporting technical justification has been provided and has been found acceptable as identified in the SER with open

items.

MEMBER BALLINGER: I have a question about the first one. I couldn't find out, in reading the documentation my first question was how much? In other words, you have a yield strength of 150 ksi. How much?

MR. GALLAGHER: Yes. We can have -- Jim Jordan, could you answer that question. So it's actually on the second one Dr. Ballinger, on the reactor head.

MEMBER BALLINGER: Oh shoot, okay. Sorry. Senior moment.

MR. GALLAGHER: No, that's fine. Jim, could you answer that question.

MR. JORDAN: Sure. My name's James Jordan with the LaSalle license renewal team. The delimiting studs that had the highest measured yield strength were in Unit 1, and the average of the certified material test reports where that material was 157 ksi.

MEMBER BALLINGER: What was the maximum?

MR. JORDAN: Well, the CMTR had ten tests associated with that material, and the

maximum was 161 ksi.

MEMBER BALLINGER: Thanks, because the Reg Guide 1.65 mentions really upper limit of 170 for use. So you're within that range?

MR. JORDAN: Yes.

MR. GALLAGHER: That's correct, and our intent Mr. Skillman, was we can go through each one of the exceptions and --

CHAIRMAN SKILLMAN: For the record, please do.

MR. GALLAGHER: Okay. Let's go -- Paul, if you can start at the beginning?

MR. WEYHMULLER: So for water chemistry, the exception for water chemistry aging management program was taken due to the LaSalle program being implemented in accordance with the newer revision of BWRVIP-190.

On the reactor head closure stud bolting, the exceptions for reactor head closure stud bolting aging management program are rated to LaSalle's specific design.

NUREG-1801 recommends as a preventive measure that reduces the potential for stress corrosion cracking using bolting material for

closure studs that have actual measured yield strengths of 150 ksi or less. LaSalle's Units 1 and 2 have some bolting with yield strengths slightly greater than 150 ksi.

The reactor head closure stud bolting aging management program will continue to include biometric examination per ASME Code, and therefore will be effective in managing cracking during the period of extended operation. For flow accelerated corrosion, the exception for flow accelerated corrosion aging management program was taken to the LaSalle program being implemented in accordance with a newer revision of an industry document NSAC-202L.

The exception associated with the reactor vessel surveillance aging management program was taken because the fluence values for the integrated surveillance capsules representing the LaSalle Unit 2 vessel do not meet the fluence range prescribed in NUREG-1801 for capsule testing.

However, this is inconsequential since the data from these capsules will not be used for evaluating reactor vessel integrity, because the capsules do not contain the same heats of material

present in the LaSalle Unit 2 vessel.

Embrittlement shift for Unit 2 will be determined by an audit methodology, based upon the material properties of actual material heats present in the LaSalle Unit 2 vessel, using chemistry factors calculated as required from Reg Guide 1.99 Revision 2.

The fire water system has three exceptions. The first exception addresses the frequency of performing external visual inspections of sprinkler systems. NUREG-1801 is modified by ISG 2012-202 states that external visual inspections of sprinkler systems are performed on an annual basis.

LaSalle Station currently performs these inspections on a 24 month frequency. A review of past inspection results has been performed, and no age-related degradation issues were identified.

In addition, the inspection frequency is consistent with the NRC-approved fire protection program and the LaSalle technical requirements manual. Therefore, an inspection frequency of 24 months is supported by the CLV and plant operating

experience.

The second exception addresses LaSalle's value (phonetic) systems that protects charcoal filter units. Due to system piping configurations, three of the 11 units cannot be tested with water or air flow, as recommended in the GALL. These three value systems which are fabricated with stainless steel piping will not be flow-tested.

In event an issue is found during testing of the other eight systems that is generic in nature, the three systems will be disassembled and internally visually inspected. All of the value spray nozzles are located within filter plenums and are not directly accessible for inspection.

Visual inspections of spray nozzles for proper orientation will be made during charcoal media sampling testing, which is performed on a 24 month frequency.

The third exception addresses the methodology for inspection for loss of material and flow blockage. NUREG-1801, as modified by the ISG, states that internal visual inspections used to

detect loss of material are capable of detecting surface irregularities that could be indicative of wall loss below nominal wall thickness due to corrosion and corrosion product deposition.

LaSalle's fire water system program for periodic volumetric examinations to monitor for loss of material in the system piping, as well internal visual inspections to monitor for flow blockage. Biometric examinations will also be performed when the visual inspections identify significant degradation in excess of what would be expected, accounting for design, previous inspection experience and inspection interval.

This approach is consistent with the strategy of the NRC's guidance on aging management of the fire water system piping, in that both volumetric examinations for loss of material and internal visual inspections for flow blockage are performed.

The compressed air monitoring aging management program exception is for a difference in methodology for monitoring of system dew point. NUREG-1801 Element 5 states that daily readings of system dew point are recorded and trended.

At LaSalle, the instrument air system dryer outlet dew points are continuously monitored, as per ANSI ISA standards using in-line detectors with automatic alarms in the main control room should limits be exceeded.

Also on a quarterly basis, samples are taken from representative locations and are analyzed and trended for dew points as well as particulate and hydrocarbons, which validates the dew point in-line detectors.

Plant operating experience has shown that continuous monitoring along with quarterly sampling is an effective method to monitor the compressed air system dew points. I will now turn the presentation over to Andy Schierer, who will discuss LaSalle's open items.

MR. SCHIERER: Thank you Paul. Slide 9, please. Good afternoon. My name is Andy Schierer. I'm the Engineering Programs Manager at LaSalle County Station. There are two open items in the LaSalle SER.

Slide 10, please. These open items involve examination coverage in two aging management programs, BWR vessel ID attachment welds

aging management program and BWR stress corrosion and cracking aging management program.

Slide 11, please. The first open item is related to questions that the NRC staff had associated with limitations and exam coverage for BWR vessel ID attachment welds using the enhanced visual examination technique commonly referred to as EVT-1.

As discussed in the SER with open items, the NRC staff expressed concern that a LaSalle procedure could allow as low as zero percent EVT-1 exam coverage for reactor internal components, including the vessel ID attachment welds.

The procedure has since been revised to eliminate the possibility that EVT-1 examination coverage of this amount would be acceptable. It also qualifies that if a visual examination of a reactor internal component results in zero percent in EVT on exam coverage, the condition will be entered into the corrective action program and evaluated to determine if a BWR deviation report would be required.

MEMBER RAY: Has the staff responded

to your changes?

MR. GALLAGHER: No. We've submitted our responses on February 25th.

MEMBER RAY: That's fine.

MR. SCHIERER: The BWR within EPRI developed the EVT-1 examination technique to identify tight cracks that are characteristic of IGSCC, to more effectively than the ASME Code VT-1 technique.

Parameters that must be met for an examination to meet current EVT-1 requirements include a maximum inspection angle of 30 degrees, surface cleanliness requirements and limitations on camera scanning speed.

It should be noted that neither LaSalle nor the domestic BWR fleet has identified any IGSCC cracking in vessel ID attachment welds. Exelon has provided the following information to the staff: We clarified that the BWRVIP reports do not establish minimum quantitative requirements for EVT-1 exam coverage.

However, for EVT-1 examinations, the expectation of both Exelon and the BWRVIP is to perform a visual inspection of the entire

accessible weld surface by a qualified and certified NDE examiner and to maximum EVT-1 exam coverage within the requirement of the EVT-1 technique.

This is consistent with BWRVIP-03, which provides examination requirements for inspections of reactor vessel internal components. LaSalle procedures for inspection of vessel ID attachment welds implement BWR expectations relative to exam coverage.

Current EVT-1 requirements were put in place in 2009. A review of examination results since this time has found that on average, approximately 68 percent of the entire weld surface was inspected with the EVT-1 examination technique. The remaining accessible weld surface was visually examined by a qualified and certified NDE examiner.

As discussed, LaSalle has been successful in obtaining significant examination coverage of vessel ID attachment welds using the EVT-1 technique. It is expected that EVT-1 examination of vessel ID attachment welds during the period of extended operation will result in similar examination coverage, as recently preformed

examinations.

Therefore, the visual examination methods used at LaSalle for EVT-1 examination of vessel internals provide for a robust aging management program. Responses to the staff's questions were provided by letter to the NRC on February 25th, 2016.

Slide 12, please. The second open item is related to volumetric exam coverage of less than 90 percent --

MEMBER RICCARDELLA: Well excuse me. I just want to make sure I understand. So you said you reviewed and you found about 60-something percent you were able to get. But then you said you did inspect the rest of it, it just didn't meet the EVT-1 qualification requirements. Is that --

MR. GALLAGHER: Yeah, yeah, yeah. The big picture here is the Code requires you to do a visual inspection of the accessible portion of the welds on the attachment, the vessel ID attachments. So we do do that and then the VIP requires you to have this advanced --

MALE SPEAKER: Enhanced.

MR. GALLAGHER: Enhanced technique,

and to try to get as much as you can with that. I mean ideally you get all of it and in some welds we do, but not all because of the restrictions that are involved. But you look at the whole accessible weld.

MEMBER RICCARDELLA: Thank you.

MR. SCHIERER: The second open item is related to volumetric exam coverage of less than 90 percent within the BWR stress corrosion cracking aging management program.

As discussed in the ICR with open opens, the NRC staff expressed concern that volumetric exams with less than 90 percent coverage that are performed within the BWR stress corrosion cracking program that are not credited for ASME Code Section 11 may not be properly evaluated to consider those exams as acceptable.

All volumetric examinations under the BWR stress corrosion cracking program are performed using current performance demonstration initiative or PDI equipment and procedures. For some weld configurations, due to the specific contour of the weld or other interferences to the equipment, examination method can only provide qualified

results for a limited examination volume of the weld that may be less than 90 percent.

Exelon has provided the information to the staff that clarifies that 90 percent coverage will be considered the minimum acceptable examination coverage during the period of extended operation, unless the basis for accepting limited exam coverage is evaluated and documented.

MEMBER BALLINGER: I have a question about that. Has anybody -- have you given any thought to -- so the remaining ten percent you just can't get to I presume? Has anybody thought about whether that remaining ten percent is maybe especially at risk? Is there a reason to believe that you won't get anything different on the ten percent or is there a reason to believe that you might get something, get different answers because they're more susceptible because of one reason or another?

MR. SCHIERER: I'd like to call on Jim Jordan to answer this question.

MR. JORDAN: Again, my name is Jim Jordan. I'm from the LaSalle license renewal team. There's really nothing about the materials or

components of the welds that we can't get full coverage on that's any different than the ones that we do.

MEMBER BALLINGER: Okay, thank you.

MEMBER RICCARDELLA: Yeah Ron. As I understand it that it's been long-standing Section 11 criteria that you have to inspect essentially 100 percent, and 90 percent is defined as essentially 100 percent.

MEMBER BALLINGER: 90 percent is the same. I read that, yeah. I'd like to tell my stepdaughter that.

(Laughter.)

MR. GALLAGHER: Okay.

MR. SCHIERER: If examination coverage is less than 90 percent, LaSalle will continue to implement actions to maximize the extent of examination coverage, generate a corrective action issue report to document and disposition weld examinations achieving less than 90 percent coverage, and initiate a relief request to justify the adequacy of the limited examination coverage if the exam is also being credited to meet ASME Code Section 11 requirements.

CHAIRMAN SKILLMAN: In two out of two you've pulled the condition report card. That tells me you're depending on your QA program at your site to do something for you. Can you say more about that?

MR. SCHIERER: Well, that's a tenet of our current licensing basis, is to utilize the corrective action program to identify and resolve equipment problems and that's true now and it will be true during the period of extended operation.

CHAIRMAN SKILLMAN: How's that system working for you?

MR. SCHIERER: It's working well.

CHAIRMAN SKILLMAN: What level of senior management buy-in do you have to that program?

MR. GALLAGHER: Yeah. Maybe John you can talk about the MRC and the whole process for the corrective action program?

MR. KOWALSKI: Sure. I think the corrective action program is a robust one at LaSalle and within Exelon. It's part of the quality assurance program. At LaSalle, we do have various committees that have an opportunity to

input to the corrective action program. Once an issue is brought up there's a SOC, Station Ownership Committee, that all issues are tracked through.

Then the MRC, Management Review Committee, reviews all incident reports, and that is at the station leadership team level, directors and plant managers. It has been robust and it does apply to aging management programs, and it applies not only to safety-related but also non-safety related systems, structures and components that are applicable to aging management review.

CHAIRMAN SKILLMAN: Could you comment on how strongly your senior management supports that?

MR. KOWALSKI: I think very strong. I think it's a cornerstone to our business. It's important. We communicate it to the workforce, to make sure people are participating. We review products. We ensure that assessments are performed to make sure that we have a healthy program, and I think the feedback of late has been positive.

CHAIRMAN SKILLMAN: Thank you.

MR. SCHIERER: Additionally, if the

exam is only credited for the BWR stress corrosion cracking program, LaSalle will justify the adequacy of the limited examination coverage in an engineering technical evaluation that is consistent with the content found in a relief request. These evaluations will be independently reviewed and retained as permanent plant records.

Responses to the staff's questions were provided by letter to the NRC on February 25th, 2016. I will now turn the presentation over to Mike Gallagher for closing remarks.

MEMBER RICCARDELLA: And looking at those responses, it appears to me there's only two welds in Unit 2 there significantly different than the 90 percent, right?

MR. GALLAGHER: Jim Jordan will be able address that. So there's only two welds that were significantly different than 9-0- percent on Unit 2.

MR. JORDAN: Yes, right. Yeah, this is Jim Jordan. I'm with the LaSalle license renewal team. Yeah, within our response, if you're looking at our response from Sept '15, there were two welds on Unit 2 that are category Delta, the IGSCC

category as categorized within Generic Letter 8801.

Both of those welds are between pipe and a cast valve, and they're considered one-sided welds. We can only achieve 50 percent coverage using the PDI methodology and procedures.

MEMBER RICCARDELLA: But that's 50 percent -- that's 100 percent of the susceptible side of the weld, right?

MR. JORDAN: Well right, right. The RAI asked us to evaluate the susceptibility to IGSCC of the cast valve, and when we did the material analysis, the ferrate (phonetic) content was low enough, such that we could assess that the cast valve was not susceptible to IGSCC.

MEMBER RICCARDELLA: Okay.

MR. GALLAGHER: Okay, and so that really concludes our presentation. We believe we've developed a comprehensive, high quality license renewal application and robust aging management programs that will ensure the continued safe operation of LaSalle. So pending any additional questions you have, that concludes our prepared presentation.

CHAIRMAN SKILLMAN: Colleagues, any

further questions for the LaSalle team?

(No response.)

CHAIRMAN SKILLMAN: Mike, please don't let your team dissolve. It could be during the discussion with the NRC staff we've got questions that you might wish to weigh into. But thank you to each one of you. Thank you.

MALE SPEAKER: Thank you.

MR. GALLAGHER: All right, thank you.

(Pause.)

CHAIRMAN SKILLMAN: All right sir. Jeffrey, go ahead please.

MR. MITCHELL: All right. Good afternoon Chairman Skillman and members of the License Renewal Subcommittee. My name is Jeffrey Mitchell and I am the license renewal project manager for the LaSalle County Station, Units 1 and 2 for LaSalle license renewal safety review.

We are here today to discuss the review of the LaSalle license renewal application as documented in the safety evaluation report with open items which was issued on February 29th, 2016. Joining me here at the table today are Dr. Stuart Sheldon, senior reactor inspector from Region III

who led the 71002 inspection, and Ms. Phyllis Clark (phonetic), DLR safety project manager running the slide.

Seated in the audience and joining by phone are members of the technical staff who participated in the review of the license renewal application and conducted onsite audits.

Next slide, please. I will begin the presentation with a general overview of the staff's review. Next, Dr. Sheldon will present the inspection activities observed during the license renewal inspection at LaSalle. I will then present the main sections of the safety evaluation report or SER, and the associated open items.

Next slide. Exelon Generation Company submitted a license renewal application or LRA for LaSalle County Station which consists of two boiling water reactors. The staff conducted two onsite audits and one inspection at the site.

During the scoping and screening methodology audit, the audit team reviewed the applicant's administrative controls governing the scoping and screening methodology, and the technical basis for selected scoping and screening

results.

The staff also reviewed selected examples of the component material and environment combinations, reviewed information contained in the applicant's corrective action program to identify operating experience relevant to plant-specific age-related degradation, and reviewed quality practice applied during the development of the LRA, and the terming of personnel who participated in the development of the LRA.

The results of the audit were documented in a report dated May 8th, 2015. During the aging management program audit, the audit team examined the applicant's aging management programs or AMPs and related documentation to verify the applicant's claims of consistency with the generic aging lessons learned report or GALL report.

The staff reviewed the initial 45 AMPs and documented the results in a report dated September 22nd, 2015. Region III will further discuss the activities of the 71002 inspection in a few minutes.

In addition to the audits and inspection already mentioned, the staff conducted

indepth technical reviews and issued requests for additional information or RAIs. The staff completed its review of the LaSalle license renewal application with the exception of two open items, and issued the safety evaluation report with open items on February 29th, 2016.

The final SER will be issued in June 2016 pending resolution of the open items regarding limited weld examination coverage in the BWR vessel inside diameter attachment welds and BWR stress corrosion cracking programs. I will now direct the presentation to Dr. Sheldon to discuss the inspection activities and results associated with the license renewal review.

MEMBER RICCARDELLA: Can I ask just a general question?

MR. MITCHELL: Yes sir.

MEMBER RICCARDELLA: What's the difference between an audit and an inspection? Could you help me with that?

MR. MITCHELL: Sure. So the audit, the primary -- general the difference between an audit and inspection, an audit is meant for the staff to verify the documentation that supports the license

renewal application. So that will be to verify that the program bases documents support what is written in the application.

An inspection is really meant to show that the applicant is taking actions, and that is being translated into actions at the plant or the conditions at the plant. So that's the high level difference between audit and inspection and that's the difference between ours.

DR. SHELDON: Okay, thank you Jeff. Good afternoon. Excuse me. Again, my name is Stuart Sheldon. I led the license renewal inspection of the LaSalle County Station Units 1 and 2.

The purpose of the 71002 license renewal inspection is to verify that the applicant has adequate programs planned or in place to implement aging management for the systems, structures and components that require an aging management review, such that these SSCs will be adequately maintained consistent with 10 C.F.R. 54, existing safety evaluations, the applicant's license renewal program.

It's also intended to verify the

applicant's license renewal documentation is retrievable, auditable and consistent with the renewal and applicant approved programs and procedures.

The scope of our inspection included all of the 46 aging management programs. By the time the inspection got there, they had added the 46. Thirty-five of those were existing programs and 11 new programs. Our scoping walkdowns included knowledge of the five regulated events and we also chose three systems that were scoped out of their system as non-safety systems scoped out of the rule, to walkdown to verify adequate scoping applicant's part.

During our two-week onsite inspection, our team reviewed site documents related to the regulated events and non-safety related structures and components whose failures could prevent safety-related SSEs from accomplishing their safety function, to confirm the applicant had applied the required scoping and screening methodology.

We also completed walkdowns of the 16 system structures or components to assess the adequacy of the applicant's license renewal

boundaries, material condition, conformance with the application and the GALL report.

This activity enabled us to assess and evaluate if the existing aging management programs will be successful at managing the aging effects for SSCs within the scope of license renewal.

Next slide, please. Based upon our walkdowns of the various areas in the plant, we concluded that the overall material condition of the structures, systems and components were good. However, during the inspection we identified a few concerns with respect to current plant programs which resulted in changes.

There was one change to their application and they changed four of their basis documents.

Next slide, please. In summary, the team concluded that the applicant performed the scoping and screening in accordance with the rule. Inspectors also found that the information was easily retrievable. We verified that the existing programs were generally effective in managing aging effects.

We also verified that the applicant has

the tools to track completion of enhancements and the development of the new programs, and lastly based on the results of this inspection, the inspectors gained reasonable assurance that the programs in place at the plant will manage the aging effects, and ensure the intended safety function of SSCs within the rule will be maintained if they're implemented as described in the application with proposed enhancements, and as supplemented through the applicant's responses to requests for additional information and inspection observations. Thank you. I'll now turn it back to Jeff.

CHAIRMAN SKILLMAN: Stuart, I'd like to ask you to stand by, because I've got a number of questions in your AMP audit inspection --

DR. SHELDON: Sure.

CHAIRMAN SKILLMAN: --that I'm curious about.

DR. SHELDON: Okay.

CHAIRMAN SKILLMAN: Let me stand down for a second. Pete, do you have something you want to add?

MEMBER RICCARDELLA: Just could you

give me a little bit of the detail about what was the issue with the feedwater nozzle program?

DR. SHELDON: The feedwater nozzle, they put in an amendment. Their application had a statement to the effect that the software that they used would determine acceptability of indications, and they had to amend it to clarify that the software does not do that, that it's used as input by the evaluator.

MEMBER RICCARDELLA: Okay, thank you.

CHAIRMAN SKILLMAN: Stuart, let me ask a number of questions. You've been thorough in reviewing the -- all of the related documentation. But I'm particularly interested in your inspection report. I would like to communicate how much I appreciate what you do.

You're really the recon for the agency and what you bring in these reports I find extremely valuable. So I appreciate what you do and I thank you, but let me ask you some questions about what you found.

This has to do with the open cycle cooling water system, and the statement that is in your inspection report is "There will be four

enhancements. These enhancements, as documented in Commitment 12, are to perform a minimum of ten MIC degradation inspections every 24 months." Can you give us an idea of how you picked those ten?

DR. SHELDON: We don't do that. The licensee, once they get the license, will make the selection.

CHAIRMAN SKILLMAN: Great. Now that's why I asked Mike Gallagher's team to not leave. Mike, could you or one of your people make a comment? How do you pick ten out of 100,000 locations?

MR. GALLAGHER: Yes. We'll have Gary Becknell answer that question. Gary.

` MR. BECKNELL: Thank you, Mike.

MR. GALLAGHER: Gary Becknell.

MR. BECKNELL: My name's Gary Becknell. I'm with the LaSalle license renewal team. The locations will be picked in accordance with the station flow (phonetic) water program, which gives guidance based on I believe it's General Letter 8913, in which you look for locations of low flow, stagnant flow in remote areas where basically the water isn't changed out at a frequent enough base

or the flow rate isn't fast enough to clear out the pipe.

CHAIRMAN SKILLMAN: Thank you. Are these ten locations the same ten each 24 months, or do you pick a new set of ten every 24 months?

MR. BECKNELL: Once again, this is Gary Becknell. The way the program will work is the ten locations will be picked. They will be monitored on a 24 month frequency, and then based on those results, if no degradation is identified, then additional locations will be picked.

If degradation is identified, then that will be monitored and then corrective action taken if needed.

CHAIRMAN SKILLMAN: Thank you, okay. A couple more questions before Stuart walks away here. Above ground metallic tanks. "During the audit, the staff identified a difference between the LRA AMP and the GALL AMP, that should have been identified as an exception. The evaluation of the staff-identified difference will be documented in the SER."

This is the SER, pages 238 to 242. Would you care to make a comment? Sounds like it's

an oversight --

DR. SHELDON: Okay. That was during the NRC audit, the headquarters audit that was identified. While we were out there, we were asked to follow up to verify that the applicant had corrected the caulk around the tanks. So we went and did a walkdown to verify that they had repaired all the caulk around the boundary tanks.

MR. MILLER: Okay. So is this Chris Miller. This is really a question mainly on the idea that the staff identified difference or the actual resolution of the issue that was identified.

CHAIRMAN SKILLMAN: I was trying to -- I was just trying to understand the item. It is Item 18. It's on page 14 of the inspection report, and the wording is "during the audit the staff identified a difference between the LRA AMP and the GALL AMP that should have been identified as an exception. The evaluation of the staff-identified difference will be documented in the SER."

DR. SHELDON: That's correct, and that's really a pointer to the SER and one of the things that we do during the audit is look for difference where perhaps the LRA should have

identified something as an exception. However, in accordance with the standard review plan, we as the staff, can take a look at that and actually disposition it ourselves as a staff-identified difference.

One of the things that we do when we do that is in addition to writing it up in -- writing up the evaluation in the SER, is we also will go to the inspection team and request that they verify that the actions are correct and that they're being taken into account there.

CHAIRMAN SKILLMAN: Okay, thank you. I've got a couple more before I stop here. The topic is Item 30, page 21 of the inspection report. "The ASME Section 11 subsection IWL programs is an existing program that with enhancements with intended to be consistent with the program described in 1801 Section XI 11S2 ASME Section 11, Section IWL.

"The program includes periodic visual examinations and testing of reinforced and pre-stressed concrete containments which includes reinforced concrete in unboned post-tensioning systems." May I ask you to explained what

"unboned" means please?

DR. SHELDON: I am at a loss. That is --

MR. MITCHELL: Dr. Skillman, could I request, is it "unboned" or "unbound"?

CHAIRMAN SKILLMAN: It is U-N-B-O-N-E-D. That sounds like unboned. It could be unbounded or unbonded but --

DR. SHELDON: I think that's a typo.

MR. THOMAS: This is George Thomas, structural engineer with the LaSalle license renewal. It is unbonded.

CHAIRMAN SKILLMAN: Okay. Let the record show that the word is "unbonded." One or two more here. This topic is protective coating monitoring and maintenance program. It is on page 24 of the inspection report. This one I thought was really unique. I'm still working on that previous one.

"LaSalle Units 1 and 2 were at full power during the inspection period, which precluded observation of physical condition of coatings. Instead, the team reviewed the recent outage-related inspections and work orders, where the

conditions of service Level 1 coatings were accessed.

"The team concluded implementation of the coating monitoring and maintenance program, as described in the LRA, should provide reasonable assurance the aging effects will be managed for the period of extended operation consistent with the licensing basis." How can you make that conclusion if you haven't looked?

DR. SHELDON: We reviewed records that the applicant had taken when they were in there observing the condition.

CHAIRMAN SKILLMAN: And will you assert that those records and that evidence was strong enough for you to make that determination?

DR. SHELDON: It was.

CHAIRMAN SKILLMAN: I'm assuming the answer is yes. Otherwise, you wouldn't have written this conclusion.

DR. SHELDON: Right. We make a conclusion. We base it on a sample that we have. That is when we concluded the reviews we did.

CHAIRMAN SKILLMAN: Thank you, all right. Metal enclosed bolts, page 26 of the

inspection report. "The program will be enhanced to also inspect 20 percent of the metal-enclosed bolted connections on a frequency of every ten years. The bus insulation will be visually inspected for signs of reduced insulation resistance, such as embrittlement, cracking, chipping, melting, swelling, discoloration or surface contamination which may indicate overheating or aging degradation."

"The program will be enhanced." What is going to be enhanced, you know? What's the baseline? "The program will be enhanced to also inspect 20 percent of." I found that vague and I was asking myself what are they really going to do here, and that's the question I'm asking. What is this? Maybe somebody from Exelon can answer that question.

DR. SHELDON: I would appreciate that.

MR. GALLAGHER: Mike Gallagher, Exelon. You know, I think it's referring to the -- our commitment, which we have enhancements in the metal enclosed bus to existing program and we had some specific enhancements that are there, one of which you just read, and that makes it consistent

with the GALL. So I mean do you want what the specific actions will be?

CHAIRMAN SKILLMAN: No, no. That's probably enough Mike. Thank you. If nothing else, know that we do our homework and we read your documents, and it's meaningful to us. Stuart, back to you. You can turn it over to Jeffrey.

MEMBER RAY: Dick, can I ask?

CHAIRMAN SKILLMAN: Yes sir.

MEMBER RAY: On the coating inspection matter, Dick didn't read it, but it also says "The program ensures that surface over one coatings maintain adhesion so as not to affect the intended functions of the ECCS section strainers." So the condition of these coatings is important to a safety function.

Can you say anything more about what the licensee's inspections that you reviewed the reports of said or did to ensure the condition was acceptable?

DR. SHELDON: That wasn't one of my programs that I did personally. I have -- one of my inspectors did that.

MEMBER RAY: I understand. Well maybe

we can then ask the licensee to expand on what their inspection program consists of. I mean we're not just talking about protection against corrosion of the vessel or something. The concern is that the coatings not interfere with the ECCS during an accident.

MR. GALLAGHER: Yeah, this is Mike Gallagher again. These are the coatings that are in the dry well, inside containment. So Dave, I guess the question is how do we actually inspect that? Okay, and the condition of it.

MEMBER RAY: All right.

MR. CLOHECY: This is Dave Clohecy. My name is Dave Clohecy from the LaSalle license renewal team. The protective coatings monitoring program is for inspection of service Level 1 coatings that are in the primary containment. That is performed by qualified inspectors looking for degradation of the coating material or the underlying metal.

MEMBER RAY: Well, okay. That I guess would be what I would hope for. As I say, when I read this I wondered how do you accomplish the goal, which is to make sure that the coatings won't

interfere with the ECCS operation following an accident condition, and I guess I'm not sure what the answer to that is. What do you do?

MR. CLOHECY: Okay sir. Dave Clohecy again from Exelon license -- LaSalle license renewal. These are visual inspections and they're looking for coating degradation, such as peeling, flaking, desponding coatings that in the event of an accident that they could become debris that would go down into the suppression pool.

There's an allowance for debris and if the coating does become degraded, it is counted as unqualified coating that's added to that debris load and compared against the allowables.

MEMBER RAY: Okay. Well my assessment is that it's -- based on what you said that it's visual and it must be somewhat judgmental as to whether they're -- because surely it wouldn't be just any defect.

It would have to be some indication there was a more widespread and I'm more curious about how this inspection is accomplished, given what its purpose is. But I think you've answered it as best you can.

MEMBER RICCARDELLA: Do you take photographs? Are there photographic records as part of the inspection report?

MR. CLOHECY: They do take photographs and that's typically included in the documentation, yes.

(Off mic comment.)

MR. CLOHECY: The condition in the LaSalle containment is very good. The dry well is inerted between outages with nitrogen. It's an epoxy coating and it's in very good condition.

MEMBER RAY: Okay, thank you.

DR. SHELDON: And if I can provide some additional support to that, looking ahead at the 71002 inspection, which was coming up, we took the opportunity during the previous refueling outage to have one of my license renewal inspectors go in and tour the containment, and I specifically asked him to look at condition of coatings, looking for blistering, flaking, peeling.

I didn't have him scrape walls but he did do that and reported back that it was in very good condition.

MEMBER RAY: Thank you.

CHAIRMAN SKILLMAN: Thank you. Jeffrey, back to you.

MR. MITCHELL: Okay. Thank you sir. In the next few slides, I'll be presenting the results as described in the SER with open items. SER Section 2 describes the scoping and screening of structures and components subject to an aging management review. The staff reviewed the applicant's scoping and screening methodology, procedures, quality controls applicable to the LRA development and training of its project personnel.

The staff also reviewed the various summaries of the safety-related systems, structures and components or SSCs, non-safety SSCs affecting safety-related components and SSCs relied upon to perform functions applicable to LaSalle, in compliance with the Commission's regulations for fire protection, environmental qualification, station blackout and anticipated transience without SCRAM.

Based on the review, the results from the scoping and screening audit and additional information provided by the applicant, the staff concludes that the applicant's scoping and

screening methodology was consistent with the standard review plan, and the requirements of 10 C.F.R. Part 54.

CHAIRMAN SKILLMAN: Jeff, let me ask this. In the material that we have, the communication is the "NRC staff independently selected a random sample of 85 components from the 218,271 components." Why is 85 out of 218,000 acceptable?

MR. MITCHELL: Sir, if I can request Mr. Bill Rogers to come up and provide a little more background on the sample selection and the rationale for that.

MR. ROGERS: Hi. This is Bill Rogers from the Division of License Renewal. I was the team leader on the scoping and screening methodology audit. So one initial thing I'd like to bring up is these -- this type of activity on the audit is duplicative to other efforts.

So there are other people that will review the information in a similar manner. So it's a little bit of review indepth that we do. So this practice was developed when Sam Lee, Dr. Lee was our acting director of DLR, and he wanted to

have a little more review indepth and we developed a couple of these types of activities.

The material environment review that we do in the audit is also one of those types of activities. So the way we chose the number was there's a variance of a number of components in the database, and we would take that number. We have a person on staff in DLR, Dr. Brady, and she in effect acts as a data analyst for us on occasions. That's not her primary function, but that's her educational background.

We asked her to give us a number that will get us back to some confidence level to some degree. We don't take credit for that confidence level. We just do what I would call it's a best practice for this type of activity.

CHAIRMAN SKILLMAN: I'm not sure what you just said.

MR. ROGERS: Okay, and how can I help you with that?

CHAIRMAN SKILLMAN: Why is 85 out of 218,000 a good number?

MR. ROGERS: I would have to defer to Dr. Brady on that.

CHAIRMAN SKILLMAN: Now I'm not suggesting that it's not a good number. But the optics would suggest wow, how does that fit? On a big machine like this you look at 85 things and you say everything's fine? You know it probably is fine. But it kind of causes an old professional engineer to scratch his head and say how can that be good?

MR. ROGERS: Well if you'll note, when we did it in this particular case, the results were that it was fine. We didn't have any anomalies in our review. But if you would like us to have a more specific answer to how those two numbers are related, we can provide that to you. But I don't think I'm -- I don't think I'm able to provide that technical relationship between those two numbers, if that's fair.

MR. MILLER: If I could, and I won't be a technical expert, I won't give you the statistical significance of it, but I think what they're trying to accomplish and Mr. Rogers is right. We didn't always do that audit, but we found the audit to be a very effective backup to what the reviewers are doing in-house here.

In-house here, they're looking at the methodology. They're looking system by system and they're trying to determine if they agree with the licensee, with the applicant's methodology.

So once you get comfortable with the methodology and understand what they're doing, and they've had a chance to do that before they go on site and we should get comfortable with that, then you need some assurance by walking on site and saying "Okay, I know what it says on paper. I'm going to walk it down the plant and see is what they say on paper right or is there any discrepancy."

So it's really more of a backup, to say yes, we have looked at it, eyes on in the plant, and we can verify that what our reviewers are seeing back at our headquarters office is accurate. So it's not trying to develop a statistical sample or anything like that. It's just a verification that the methodology that the applicant is using is understandable and is acceptable.

CHAIRMAN SKILLMAN: I thank both of you for your explanations. I guess where I am is I would say hey, if you look at a couple of dozen

examples and the overriding conclusion seems to ring true, that this process is functioning properly and right things are being looked at for the right reasons and right -- the appropriate findings are being identified and acted on, that's probably really good.

So I don't contest the 85. I was just more remarking on how can 85 out of 218,000 be acceptable. Thank you. I'm good, thanks. Jeffrey, back you.

MR. MITCHELL: Would you like us to take an action item and provide any more?

CHAIRMAN SKILLMAN: No, no. I think a couple of dozen, that's kind of where I'd be if I was trying to get a sense of things, and I think this gives a sense of things. This isn't a precise answer, but it's a trend that lets you decide how much further to dig, and that's what it does.

MR. MITCHELL: Okay.

CHAIRMAN SKILLMAN: Thank you. Okay, let's go.

MR. MITCHELL: SER Section 3.0 covers the staff's review of the applicant's aging management programs. For a given aging management

review, the staff reviewed the item to determine whether it is consistent with the GALL report.

Sections 3.1 through 3.6 include the aging management review items in each of the general system areas within the scope of license renewal. If an aging management review was not consistent with the GALL report, the staff reviewed the applicant's evaluation to determine whether the applicant has demonstrated that the effects of aging will be adequately managed, so that the intended functions will be maintained consistent with the current licensing basis for the period of extended operation.

The applicant identified 45 aging management programs in the original LRA. This slide identifies the applicant's disposition of these AMPs in the left column, and the disposition of the SER -- disposition in the SER with open items as a result of the staff's review in the right column. All were evaluated by the staff for consistency with the GALL report.

During the staff's review, the staff issued requests for additional information regarding the differences in the Unit 1 and Unit 2

small bore piping operating experience, which resulted in the applicant crediting the GALL report AMP for Unit 1 only, and the new plant-specific AMP for Unit 2.

This Unit 2 inspection of the ASME Code Class 1 small bore piping program is included in the final count of 46 total aging management programs on the right side of the slide. Two programs, BWR vessel, inside diameter attachment welds and BWR stress corrosion cracking was submitted as consistent with the GALL report.

The final disposition of these two AMPs is pending final resolution of the open items related to these programs. Note that the applicant's presentation listed ten AMPs that are consistent with the GALL report. This number includes the two AMPs that we list as having the open items.

On this slide, I've listed the two AMPs with those open items separately, which together with the eight that we consider consistent, that makes up that ten total AMPs.

CHAIRMAN SKILLMAN: Jeffrey, let me ask a question here on that topic, the Class 1 small

bore piping program. Apparently, at one time Unit 2 did have cracking. Is this the reason why Unit 2 has a different program than Unit 1?

MR. MITCHELL: To keep myself out of trouble, I'll ask Roger Kalikian to respond to that.

MR. KALIKIAN: This is Roger Kalikian. Yes, there was leakage from a pinhole. It wasn't identified as cracking, but we thought that may be edge related so we questioned. We had an RAI and the applicant decided that they would implement a plant-specific program for that unit.

CHAIRMAN SKILLMAN: I understand. Thank you.

MR. KALIKIAN: You're welcome.

CHAIRMAN SKILLMAN: Thank you. Okay.

MR. MITCHELL: Okay. Section 3.0.3.1.2 describes the BWR vessel inside diameter attachment welds program. The RAI describes the BWR vessel inside diameter attachment welds program as an existing program that is consistent with the program elements in the GALL report AMP 11.M4, BWR vessel inside diameter attachment welds.

During the AMP audit, the staff

reviewed documents relevant to the program and concluded that program elements 1 through 6 were consistent with the corresponding program elements of GALL report AMP 11.M4.

However, as a result of the subsequent inspection in accordance with NRC inspection procedure 71002, the license renewal inspection, the staff had an opportunity to review the applicant's implementing procedures again.

The staff noted that as a result of recent revisions to the inspection requirements for EVT-1 visual examinations and boiling water reactor vessels and internals project or BWRVIP-03, titled "Reactor Pressure Vessel and Internals Examination Requirements," the effect of examination coverage may have been reduced to zero percent for some locations.

Because of the relevant BWRVIP guidelines for this aging management program do not provide a minimum required effective examination coverage for these EVT-1 examinations, inspections which may yield an effective examination coverage of zero percent could be interpreted as meeting BWRVIP guidelines, and therefore would not require

a deviation report, engineering evaluation or other mitigating actions.

On February 16th, 2016, the staff issued a request for additional information, requesting that the applicant provide clarification for the extent of examination coverage of past EVT-1 inspections performed at LaSalle, and the technical basis for limited inspection coverage.

On February 25th, 2016, the applicant responded to the RAI. The staff's review of the applicant's response is continuing, and will be documented in the final safety evaluation report, which will be discussed at the ACRS full committee meeting. Currently, the staff does not anticipate issuing any further RAIs for this item.

Pending resolution of the issues related to the EVT-1 inspections, this issue is identified as Open Item 3.0.3.1.2-1.

Next slide, please. Section 3.0.3.1.5 describes the BWR's stress corrosion cracking program. The LRA describes the BWR stress corrosion cracking program as an existing program that is consistent with the program elements in GALL report AMP 11.M7, BWR stress corrosion

cracking.

During the AMP audit, the staff reviewed recent LaSalle post-audit 90 day in-service inspection summary reports and noted that the examination coverage for some welds in the program was as low as 50 percent. Because these examinations are classified in augmented in-service inspections, the applicant does not submit relief requests for the limited examination coverage as would be required if they were inspections to meet ASME Code Section 11 requirements.

Although the applicant provided in its RAI responses a sufficient justification on the adequacy of the examination coverage of past inspections, the program does not require a formal disposition of weld inspections with limited inspection examination coverage.

On February 16th, 2016, the staff issued a request for additional information, asking the applicant to confirm the percentage of examination coverage that Exelon considers as meeting the program requirements, as well as to provide how the program will disposition instances when the coverage obtained is less than the ASME

Code requirement of 90 percent.

The applicant responded to the RAI on February 25th, 2016. The staff's review of the applicant's response is continuing and will be documented in the final safety evaluation report, which will be discussed at the ACRS full committee meeting. Currently, the staff does not anticipate issuing further RAIs for this item.

Pending the satisfactory resolution of the staff's concerns related to the examination coverage, this issue as identified as Open Item 3.0.3.1.5-1.

SER Section 4 identifies time-limited aging analyses or TLAAs. Section 4.1 documents the staff's evaluation of the applicant's identification of applicable TLAAs. The staff evaluated the applicant's basis for identifying those plant-specific or generic analyses that need to be identified as TLAAs, and determined that the applicant has provided an accurate list of TLAAs as required by 10 C.F.R. 54.21(c)(1).

Sections 4.2 through 4.7 document the staff's review of the applicable LaSalle TLAAs as shown. Based on its review and the information

provided by the applicant, the staff concludes that either (1) the TLAAs remain valid for the period of extended operation, (2) the TLAAs have been projected to the end of the period of extended operation or (3) the effects of aging on the intended functions will be adequately managed for the period of extended operation, as required by 10 C.F.R. 54.21(c), subparagraphs (i), (ii) and (iii) respectively.

Next slide, please. The staff's conclusion will be provided in the final SER. Pending the satisfactory resolution of the open items, the staff will determine whether the requirements of 10 C.F.R. 54.29(a) have been met for the license renewal of LaSalle County Station Units 1 and 2. This concludes our staff presentation. We are available for any further questions from the Subcommittee. Thank you.

CHAIRMAN SKILLMAN: Jeffrey, Stuart, Phyllis, thank you. Colleagues, any questions for the NRC staff at this point?

(No response.)

CHAIRMAN SKILLMAN: None? Okay. With that, what we're going to do is ask if there is

anybody in the room from the public that would like to make a comment, and while we're doing that, we're going to make sure we open the phone line. So may I ask if there's anybody in the room who cares to make a comment.

(No response.)

CHAIRMAN SKILLMAN: Hearing none. Good afternoon, we are the ACRS. If somebody is on the phone line, would you just please say hello?

(No response.)

CHAIRMAN SKILLMAN: Well good afternoon. If anybody is out there that would like to make a comment, please state your name and make your comment.

(No response.)

CHAIRMAN SKILLMAN: Hearing none, we will close the public phone line. Thank you.

CHAIRMAN SKILLMAN: Colleagues, let's go around one more time. If any of you might have a comment for any of the items or any of the individuals that we heard from today. Dr. Ballinger?

MEMBER BALLINGER: Nothing further, thank you.

CHAIRMAN SKILLMAN: Thank you. Harold?

MEMBER RAY: We had a series of things we looked at ahead of time, but they all came up and were addressed during the course of the last couple of hours.

CHAIRMAN SKILLMAN: Thank you, Harold. Pete?

MEMBER RICCARDELLA: No. I think I reviewed the materials and stress corrosion cracking aspects of it, and I think they've done a very thorough job. I congratulate them.

CHAIRMAN SKILLMAN: Okay, thank you. From a process standpoint, I believe we are scheduled to meet with the full committee in July it is, and we will be writing a letter at that time. We'll be working on that letter between now and then.

With that, I want to thank the NRC staff, Chris your team and the NRC staff members, thank you, and to Mike Gallagher and his entire team. You've brought a complete varsity team here today and I know it's a lot of expense. But thank you for taking the time and putting yourself at risk to come here. We appreciate it very much, and

it allows us to do what we need to do. Thank you very much.

MR. GALLAGHER: Thank you.

CHAIRMAN SKILLMAN: And thank you to our reporter, and with that, we are adjourned.

(Whereupon, the above-entitled matter went off the record at 2:21 p.m.)

LaSalle County Station, Units 1 and 2 License Renewal Application

ACRS Subcommittee Presentation
April 19, 2016

Exelon

Introductions

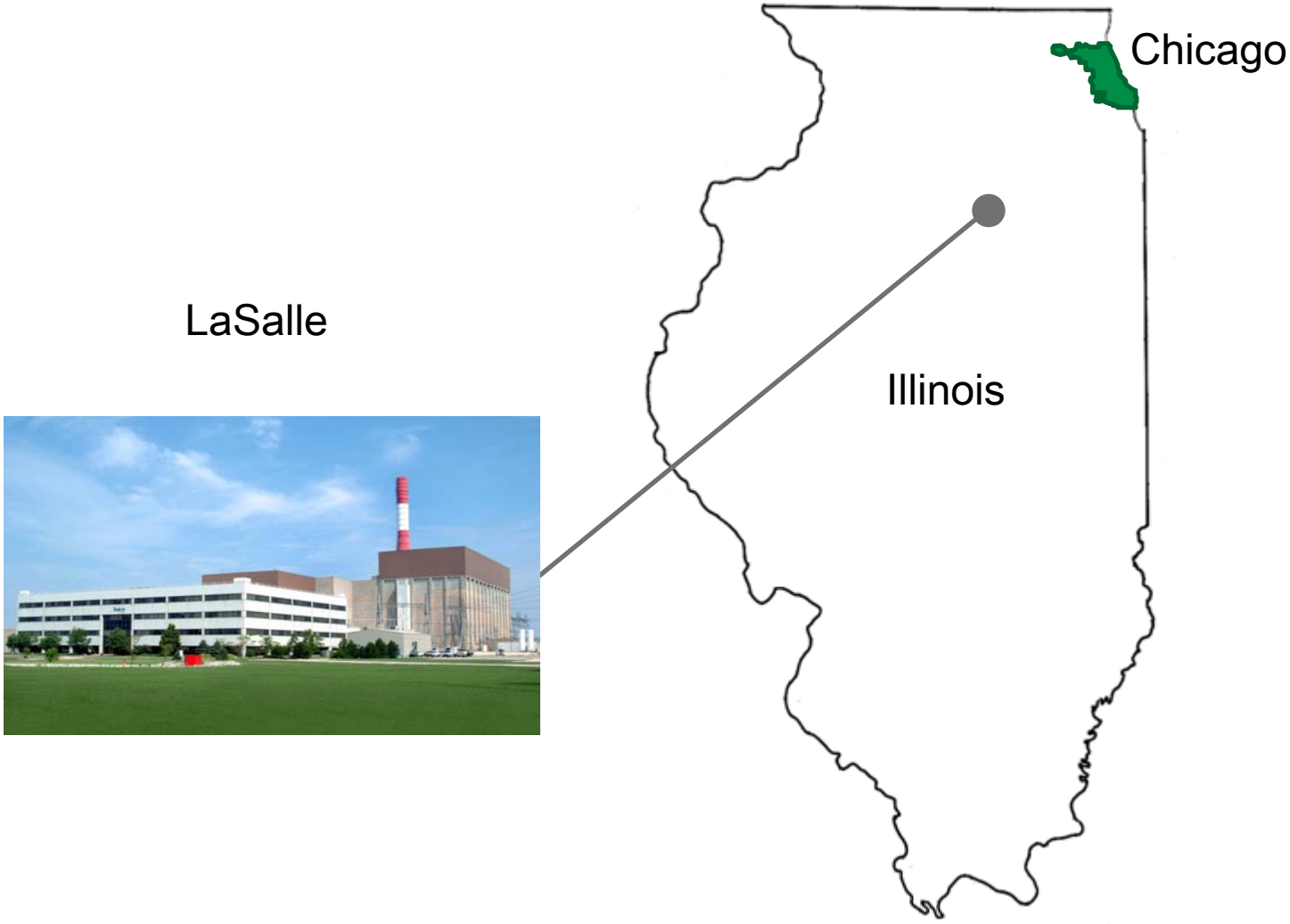
- Mike Gallagher — VP, Exelon License Renewal
- John Kowalski — LaSalle Engineering Director
- Paul Weyhmuller — LR Technical Manager
- Andy Schierer — LaSalle Programs Manager
- John Hufnagel — Project Licensing Engineer

Agenda

• Introductions	Mike Gallagher
• Station Description and Overview	John Kowalski
• GALL Consistency and Commitments	Paul Weyhmuller
• Open Items	Andy Schierer
• Closing Remarks	Mike Gallagher

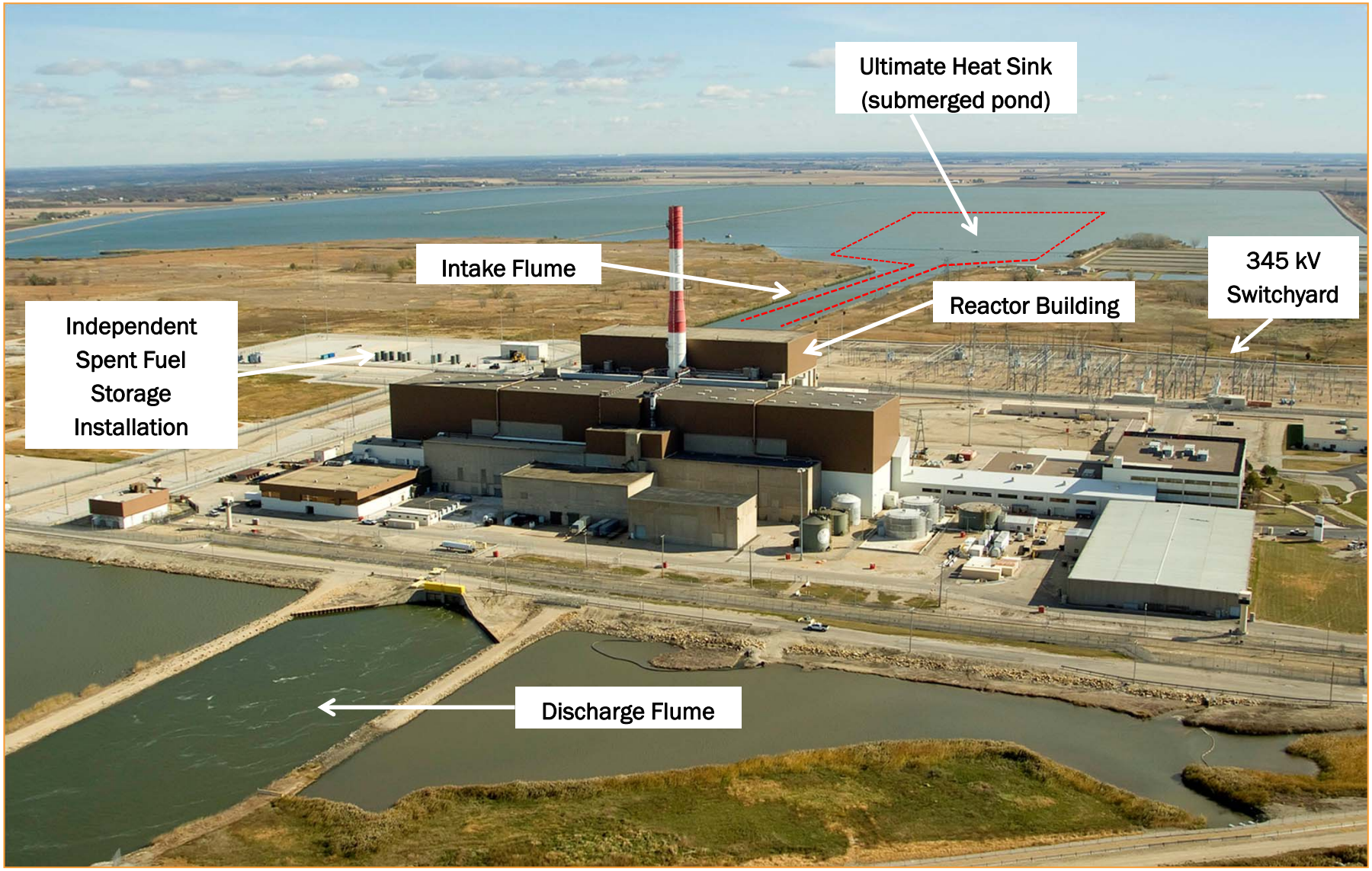
Exelon.

LaSalle County Station Location



Exelon.

LaSalle County Station



Exelon.

Station Overview

LaSalle	Unit 1	Unit 2
Initial License Date	4/17/1982	12/16/1983
5% Power Uprate to 3489 MW_t	2000	2000
1.65% Measurement Uncertainty Recapture (MUR) 3546 MW_t	2010	2011
Noble Metal Chemical Addition	1999	2000
H_2 Water Chemistry	2000	2001
Independent Spent Fuel Storage Installation (ISFSI)	2009	
Main Power Transformers	2012	2015
Current License Expiration Date	4/17/2022	12/16/2023

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GALL Consistency and Commitments

GALL Consistency and Commitments

- Submittal based on GALL, Revision 2 as amended by ISG's as described in the LRA, Section 2.1.4

- 48 License Renewal Commitments
  - UFSAR Supplement (Appendix A of the LRA)
  - Managed by Exelon Commitment Tracking program based on Nuclear Energy Institute 99-04, "Guidelines for Managing NRC Commitment Changes"

		AMPs Consistent with GALL	AMPs Consistent with Enhancement	AMPs with Exception without Enhancement	AMPs with Exception and Enhancement	Plant Specific AMPs
Existing	35	10	19	3	3	0
New	11	9	0	0	0	2
Total AMPs	46					

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Aging Management Programs - Exceptions

Program	Exception	Justification
Water Chemistry	Use of later revision of BWRVIP-190	Later revision contains more restrictive criteria
Reactor Head Closure Stud Bolting	Use of installed component materials with yield strength >150 ksi	Installed bolting component material volumetrically inspected for cracking on 10 year frequency
	Spare component materials with yield strength >150 ksi	Spare bolting component material inspected prior to use
Flow-Accelerated Corrosion	Use of later revision of NSAC-202L	Later revision addresses OE and latest technologies
Reactor Vessel Surveillance	Fluence ranges not met – Unit 2 only	Alternate methodology used to determine embrittlement shift per Reg. Guide 1.99, Revision 2 (chemistry factor tables)
Fire Water System	External sprinkler system inspections at a 24 month vs 12 month frequency	Plant Fire Protection Program and Operating Experience support the 24 month frequency
	3 of 11 deluge systems for charcoal filter units cannot be tested with air or water	Constructed of stainless steel, 8 of 11 will be tested with air with internal inspections of remaining 3 deluge systems if issues found. All spray nozzles will be visually inspected.
	Follow-up volumetric inspection is performed only when significant wall loss is identified.	Routine periodic volumetric inspections performed annually for wall loss. Visual inspections performed for flow blockage.
Compressed Air Monitoring	Daily dew point readings not recorded	Continuous dew point monitoring with alarms in the Main Control Room

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Open Items

Open Items

Safety Evaluation Report with Open Items

- OI 3.0.3.1.2-1: EVT-1 Exam Coverage - BWR Vessel ID Attachment Welds Aging Management Program

- OI 3.0.3.1.5-1: Limited Volumetric Exam Coverage - BWR Stress Corrosion Cracking Aging Management Program

Open Items

- OI 3.0.3.1.2-1: EVT-1 Exam Coverage - BWR Vessel ID Attachment Welds Aging Management Program

Exelon provided information to the NRC on February 25, 2016 in response to RAI B.2.1.4-1:

- Procedure has been revised to eliminate the possibility that EVT-1 weld exam coverage of 0% could be acceptable
- Visual inspections are performed of entire accessible Vessel ID attachment welds, by a qualified and certified NDE Examiner. EVT-1 exam coverage is maximized, consistent with BWRVIP-48-A and BWRVIP-03 guidance.

Open Items

- OI 3.0.3.1.5-1: Limited Volumetric Exam Coverage - BWR Stress Corrosion Cracking Aging Management Program

Exelon provided information to the NRC on February 25, 2016 in response to RAI B.2.1.7-3b:

- 90% examination coverage is considered the minimum acceptable examination coverage, without evaluation, during the period of extended operation
- If less than 90% coverage, procedures require:
  - Actions to maximize extent of examination coverage
  - A corrective action issue report to be generated
  - Initiation of a relief request if exam is credited to meet ASME Code Section XI requirements
  - If not credited to meet ASME Code Section XI requirements but credited for the BWR SCC AMP, an Engineering Technical Evaluation is prepared with content consistent with an ASME Code relief request

Closing

Questions ???

LaSalle County Station, Units 1 and 2 License Renewal Application

ACRS Subcommittee Presentation
April 19, 2016

Exelon

United States Nuclear Regulatory Commission

Protecting People and the Environment

Advisory Committee on Reactor Safeguards License Renewal Subcommittee

LaSalle County Station, Units 1 and 2
Safety Evaluation Report (SER) with Open Items

Jeffrey Mitchell, Project Manager
Office of Nuclear Reactor Regulation

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Presentation Outline

- Overview of LaSalle license renewal review
- Region III 71002 Inspection, License Renewal Inspection
- SER Section 2, Scoping and Screening Review
- SER Section 3, Aging Management Review
- SER Section 4, Time-Limited Aging Analyses
- Conclusion

License Renewal Review
(Audits and Inspections)

- **Scoping and Screening Methodology Audit**
  - March 9 – 13, 2015
- **Aging Management Program (AMP) Audit**
  - March 30 – April 3, 2015, and April 13 – 17, 2015
- **Region III 71002 Inspection (Scoping and Screening & AMPs)**
  - September 28 – October 16, 2015

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SER Overview

- **SER with Open Items (OIs) was issued February 29, 2016**
- **LaSalle SER contains two OIs:**
  - OI 3.0.3.1.2-1 BWR Vessel ID Attachment Welds
  - OI 3.0.3.1.5-1 BWR Stress Corrosion Cracking
- **The final SER is scheduled for publication June 2016**

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71002 Inspection

- **Scope**
  - Aging Management Programs
  - Regulated Events
  - Non-Safety Systems affecting Safety Systems
- **Inspection**
  - September 28 – October 16, 2015
  - Team Inspection (6 inspectors) on-site for 2 weeks

71002 Inspection

Overall Inspection Results

- Material Condition of SSCs – Good
- Application Change to 1 AMP
  - B.2.1.5 BWR Feedwater Nozzle AMP
- Four Basis Document Changes

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71002 Inspection

- **Conclusions:**
  - Scoping and screening performed in accordance with 10 CFR 54
  - Information used to prepare the license renewal application was retrievable, auditable, and consistent with 10 CFR 54
  - Existing programs were generally effective in managing aging effects
  - Actions to address enhancements and new programs are being tracked for completion
  - Reasonable assurance that aging effects will be managed and intended functions maintained, subject to resolution of issues requiring further review

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SER Section 2

- **Structures and Components Subject to Aging Management Review**
  - Section 2.1, Scoping and Screening Methodology
  - Section 2.2, Plant-Level Scoping Results
  - Sections 2.3, 2.4, 2.5 Scoping and Screening Results

SER Section 3

- **Aging Management Review Results**
  - Section 3.0, Aging Management Programs
  - Section 3.1, Reactor Vessel, Internals, and Reactor Coolant System
  - Section 3.2, Engineered Safety Features Systems
  - Section 3.3, Auxiliary Systems
  - Section 3.4, Steam and Power Conversion Systems
  - Section 3.5, Structures and Component Supports
  - Section 3.6, Electrical and Instrumentation and Controls System

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SER Section 3

3.0.3 - Aging Management Programs

Applicant's Original Disposition of AMPs	Final Disposition of AMPs in SER with OIs
• 10 new programs – 9 consistent – 1 plant specific • 35 existing programs - 12 consistent - 19 consistent with enhancements - 2 consistent with exceptions - 2 consistent with enhancements and exceptions	• 11 new programs – 9 consistent – 2 plant specific* • 35 existing programs - 8 consistent - 19 consistent with enhancements - 3 consistent with exceptions - 3 consistent with enhancements and exceptions - 2 pending Open Item resolution * 1 new plant specific AMP added during review

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Open Item 3.0.3.1.2-1

3.0.3.1.2 – BWR Vessel ID Attch. Welds

- **Issue**: BWRVIP guidance changes for EVT-1 viewing angle limitation reduced effective examination coverage. Coverage requirements not specified.

- **Concern**: Program's ability to credit EVT-1s with zero percent coverage questions program adequacy.

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Open Item 3.0.3.1.5-1

3.0.3.1.5 – BWR Stress Corr. Cracking

- **Issue**: Formal disposition of limited examination coverage for augmented weld inspections not included.

- **Concern**: Program effectiveness not assured without documented bases for crediting limited weld inspections.

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SER Section 4

- **Time-Limited Aging Analyses**
  - 4.1, Identification of Time-Limited Aging Analyses
  - 4.2, Reactor Vessel and Internals Neutron Embrittlement
  - 4.3, Metal Fatigue
  - 4.4, Environmental Qualification (EQ) of Electric Components
  - 4.5, Concrete Containment Tendon Prestress
  - 4.6, Primary Containment Fatigue
  - 4.7, Other Plant-Specific TLAAs

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Conclusion

Pending satisfactory resolution of the open items, the staff will determine whether the requirements of 10 CFR 54.29(a) have been met for the license renewal of LaSalle County Station, Units 1 and 2.

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Backup Slides

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Staff-Identified Difference

- **3.0.3.1.10 Selective Leaching**
  - AMP Program Description does not include Al-Br
  - No Al-Br components in scope of LR at LaSalle
- **3.0.3.2.11 Aboveground Metallic Tanks**
  - AMP program elements do not include aging effect of cracking due to SCC
  - No materials susceptible to SCC in scope of LR
- **3.0.3.2.14 Buried and Underground Piping**
  - AMP uses 1 mpy criteria vs GALL criteria
  - Method evaluated as acceptable

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Requests for Additional Information

- 81 total RAIs issued in 15 letters (“sets”)
- 6 follow-up RAIs
  - 1 of which was second follow-up, pertaining to Open Item 3.0.3.1.5-1

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Requests for Additional Information

- LIC-101 LAR Review Procedures (RAIs)
- Clarification telecons for most sets
- Timely response (<30 days)
- Applicant document and staff availability during AMP Audit helped confirm GALL consistency, enhancements, and exceptions
- RAIs from other reviews already incorporated into LRA