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RS-17-099 10 CFR 50.90

August 8, 2017

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

LaSalle County Station, Units 1 and 2
Renewed Facility Operating License Nos. NPF-11 and NPF-18
NRC Docket Nos. 50-373 and 50-374

Subject: Response to Request for Additional Information Regarding LaSalle County Station License Amendment Request for Extension of Type A and Type C Containment Leak Rate Test Intervals (PRA Branch)

References:

1) Letter from D. M. Gullott (Exelon Generation Company, LLC) to U.S. Nuclear Regulatory Commission, "License Amendment Request to Revise Technical Specifications 5.5.13, "Primary Containment Leakage Rate Testing Program," for Permanent Extension of Type A and Type C Leak Rate Test Frequencies," dated October 26, 2016 (ADAMS Accession No. ML16300A200)

2) Letter from B. Vaidya (U.S. Nuclear Regulatory Commission) to B. C. Hanson (Exelon Generation Company, LLC), "LaSalle County Station, Units 1 and 2, Request for Additional Information Regarding License Amendment Request for Extension of Type A and Type C Leak Rate Test Frequencies (CAC Nos. MF8700 and MF8701)," dated June 15, 2017 (ADAMS Accession No. ML17164A115)

3) Letter from D. M. Gullott (Exelon Generation Company, LLC) to U.S. Nuclear Regulatory Commission, "Response to Request for Additional Information Regarding LaSalle County Station License Amendment Request for Extension of Type A and Type C Containment Leak Rate Test Intervals (SBPB Branch)," dated July 17, 2017

4) Letter from B. Vaidya (U.S. Nuclear Regulatory Commission) to B. C. Hanson (Exelon Generation Company, LLC), "LaSalle County Station, Units 1 and 2, Request for Additional Information Regarding License Amendment Request for Extension of Type A and Type C Leak Rate Test Frequencies (CAC Nos. MF8700 and MF8701)," dated June 5, 2017 (ADAMS Accession No. ML17151A382)

In Reference 1, Exelon Generation Company, LLC (EGC) submitted an amendment request for LaSalle County Station (LSCS), Units 1 and 2. The proposed amendment would revise Technical Specifications (TS) 5.5.13, "Primary Containment Leakage Rate Testing Program," to allow for the permanent extension of the Type A integrated leak rate testing (ILRT) and Type C leak rate testing frequencies. In Reference 2, the U.S. Nuclear Regulatory Commission (NRC), SBPB Branch, requested additional information related to its review of Reference 1. EGC provided a supplement with a response to the NRC request in Reference 3.

In Reference 4, the NRC, PRA Branch, requested additional information related to its review of Reference 1. The requested information is provided in the Attachment to this letter.

EGG has reviewed the information supporting a finding of no significant hazards consideration and the environmental consideration that were previously provided to the NRC in Attachment 1 of Reference 1. The additional information provided in Reference 3 and provided in this submittal do not affect the bases for concluding that the proposed license amendment request does not involve a significant hazards consideration, and no environmental impact statement or environmental assessment need to be prepared.

There are no regulatory commitments contained within this letter. Should you have any questions concerning this letter, please contact Ms. Lisa A. Simpson at (630) 657-2815.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 8th day of August 2017.

Respectfully,

David M. Gullott
Manager – Licensing
Exelon Generation Company, LLC

Attachment: LaSalle ILRT Extension License Amendment Request – Response to NRC Request for Additional Information

cc: NRC Regional Administrator, Region III
NRC Senior Resident Inspector, LaSalle County Station
Illinois Emergency Management Agency – Division of Nuclear Safety

ATTACHMENT

LaSalle ILRT Extension License Amendment Request –
Response to NRC Request for Additional Information

LS-LAR-09, Rev. 0

54 pages follow

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RISK MANAGEMENT TEAM

RM DOCUMENTATION NO.	**LS-LAR-09**	**REV: 0**	**PAGE NO. 1**

STATION: LaSalle County Station (LSCS)

UNIT(s) AFFECTED: 1 & 2

TITLE: LaSalle ILRT Extension License Amendment Request – Response to NRC Request for Additional Information

SUMMARY:
LSCS is pursuing a License Amendment Request (LAR) to permanently extend the Type A Integrated Leak Rate Test (ILRT) to 15 years.

The purpose of this document is to respond to NRC Request for Additional Information (RAI) (ML17151A382) dated June 5, 2017

This is a Category I Risk Management Document in accordance with ER-AA-600-1012 Risk Management Documentation, Revision 13, which requires independent review and approval.

[ ] Review required after periodic update

[X] Internal RM Documentation **[ ] External RM Documentation**

Electronic Calculation Data Files:
N/A

Method of Review: [X] Detailed [ ] Alternate [ ] Review of External Document

This RM documentation supersedes: N/A

	Print	Sign	Date
Prepared by:	Felipe Gonzalez	(signature)	8/4/2017
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Approved by:	Eugene Kelly	(signature) For Gene Kelly (email approval)	8/4/2017

REQUEST FOR ADDITIONAL INFORMATION REGARDING LICENSE AMENDMENT REQUEST TO REVISE TECHNICAL SPECIFICATIONS 5.5.13 "PRIMARY CONTAINMENT LEAKAGE RATE TESTING PROGRAM", FOR PERMANENT EXTENSION OF TYPE A AND TYPE C TESTING FREQUENCIES – LA SALLE COUNTY STATION (LSCS), UNITS 1 AND 2 (CAC NOS. MF8700 AND MF8701)

PRA RAI 01

As described in Sections A.2.3 and A.2.4 of Appendix A to Attachment 3 of the license amendment request (LAR), the LaSalle County Station (LSCS) internal events and internal flooding Probabilistic Risk Assessment (PRA) underwent a peer review in 2008 against the American Society of Mechanical Engineers (ASME) PRA standard RA-Sa-2002 and the clarifications and qualifications in Revision 1 of Regulatory Guide (RG) 1.200. Consistent with the NRC safety evaluation report dated June 25, 2008 (ADAMS Accession No. ML081140105) for Nuclear Energy Institute (NEI) 94-01, Revision 2, and Electric Power Research Institute (EPRI) Technical Report (TR) 1009325, Revision 2, "[c]apability category I [CC I]...shall be applied as the standard, since approximate values of CDF [Core Damage Frequency] and LERF [Large Early Release Frequency] and their distribution among release categories are sufficient for use in the EPRI methodology." However, as indicated in Section A.2.3 of the LAR, finding-level Facts and Observations (F&Os) and supporting dispositions, as documented in Table A-1 of the LAR, are only provided for those supporting requirements (SRs) determined by the peer review to be not met. The two finding-level F&Os associated with SRs met at CC I and supporting dispositions are not included.

Additionally, the LSCS internal events and internal flooding PRA used to support the application underwent a self-assessment in 2014 against the American Society of Mechanical Engineers/American Nuclear Society (ASME/ANS) PRA standard RA-Sa-2009, as clarified/qualified by Revision 2 of RG 1.200. While Section A.2.3 of the LAR appears to indicate that 17 gaps were identified for SRs determined to be not met or met at CC I, only a subset of these gaps and their dispositions appear to have been provided in Table A-2 of the LAR.

Please provide all finding-level F&Os and gaps for SRs determined by the 2008 peer review or the 2014 self-assessment to be at CC I or not met, include associated dispositions and address impact on the application.

Response to RAI 01

Table A-1 of the LAR included six suggestions (HR-G6-01, LE-G6-01, SC-B5-01, QU-D1a-01, QU-D4-01, QU-F6-01) and five findings. Eight additional finding level F&Os and their impact to the ILRT application are found below in Table RAI 01-1. Note these findings were not included in the ILRT LAR submittal as the applicable SRs were met at CC-I or above.

There were a total of 13 FPIE Peer Review PRA findings. In April of 2017 a LaSalle County Generation Station Unit 2 Full-Power Internal Events (FPIE) Probabilistic Risk Assessment (PRA) Fact and Observation (F&O) Independent Assessment (IA) was performed at one of the workshops for BWROG pilot applications of the NEI Appendix X process to close F&Os. The IA findings are documented in the *LaSalle County Generating Station Unit 2 PRA Facts and Observations Independent Assessment Report Using NEI 05-04/07-12/12-06 Appendix X*, dated June, 2017. During the IA, 12 of the 13 FPIE findings were reviewed by the IA team and the IA team agreed that 11 of the 12 reviewed findings were closed. The IA team concluded that the remaining reviewed finding was partially closed. The partially closed finding is IE-D3-01 and the open finding (not reviewed by the IA team) is DA-C8-01. IE-D3-01 is "linked" to multiple SRs.

The IA found all of the SRs linked to IE-D3-01 are met or met at CC-II except LE-G4. LE-G4 is a documentation related SR associated with LERF uncertainty analysis and would not impact the LSCS ILRT risk assessment results.

Finding DA-C8-01 is associated with SR DA-C8. SR DA-C8 is met at CC-I. There is no impact to this application as CC-I is deemed adequate.

All finding-level F&Os and gaps for SRs determined by the 2008 peer review are found in the tables below:

- Table RAI 01-1 2008 FPIE F&O FINDINGS
- Table RAI 01-2 2008 FPIE PEER REVIEW SRS NOT MET
- Table RAI 01-3 2008 FPIE PEER REVIEW SRS MET AT CC-I

The 2014 self-assessment gaps found to be at CC I or not met are the following:

- Not Met
  - IFSO-A3 and IFQU-A3 (See Table A-2 of LAR submittal, GAP #1)
  - DA-C6 and DA-C10 (See Table A-2 of LAR submittal, GAP #2)
  - IFSN-A7 (See Table A-2 of LAR submittal, GAP #3)
- Met at CC I
  - SC-A5, HR-D3, DA-C7, DA-C8 (See Table RAI 01-4 below)

TABLE RAI 01-1

2008 FPIE F&O FINDINGS

FINDING NO.	DESCRIPTION OF FINDING	APPLICABLE SRs	SR REQUIREMENT	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
HR-A1-01	This requirement [HR-A1] is probably met during the review to determine the pre-initiator HEPs, however, there is no list or documentation showing the procedures. Similarly for HR-A2, the documentation does not provide evidence of the procedures reviewed. It just says procedures are reviewed.	HR-A1 HR-A2	"HR-A1: For equipment modeled in the PRA, IDENTIFY, through a review of procedures and practices, those test and maintenance activities that require realignment of equipment outside its normal operational or standby status. HR-A2: IDENTIFY, through a review of procedures and practices, those calibration activities that if performed incorrectly can have an adverse impact on the automatic initiation of standby safety equipment."	Closed: Reviewed procedures applicable to pre-initiators are found in Table B-5 and Appendix C of the HRA Notebook, LS-PSA-004.	No impact. SR is now met at CC-II.
HR-B1-01	There does not appear to be any screening list or discussion except for dependency. The identification process is described in the HRA notebook section 2.3.2 and information located in the system notebooks (general response from utility). This requirement is not met as per the CC-II requirements of the ASME Standard.	HR-B1	CC-II: If screening is performed, ESTABLISH rules for screening classes of activities from further consideration. Example: Screen maintenance and test activities from further consideration only if (a) Equipment is automatically re-aligned on system demand (b) Following maintenance activities, a post-maintenance functional test is performed that reveals misalignment. (c) Equipment position is indicated in the control room, status is routinely checked, and realignment can be affected from the control room, or (d) Equipment status is required to be checked frequently (i.e., at least once a shift)	Closed: A pre-initiator screening was performed as part of the 2011A PRA update and is documented in Appendix J of LS-PSA-004, LaSalle HRA Notebook. (URE LS2010-0043)	No impact. SR is met at CC-II.

TABLE RAI 01-1

2008 FPIE F&O FINDINGS

FINDING NO.	DESCRIPTION OF FINDING	APPLICABLE SRs	SR REQUIREMENT	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
DA-C1-01	Plant specific data is used to calculate unavailability for most plant systems/components in LS-PSA-010, although generic data is used for the VD and VY ventilation systems, which is not permitted per this SR.	DA-C1	CC-I-III: OBTAIN generic parameter estimates from recognized sources. ENSURE that the parameter definitions and boundary conditions are consistent with those established in response to DA-A1 to DA-A3. [Example: some sources include the breaker within the pump boundary, whereas others do not.] DO NOT INCLUDE generic data for unavailability due to test, maintenance, and repair unless it can be established that the data is consistent with the test and maintenance philosophies for the subject plant. Examples of parameter estimates and associated sources include: (a) component failure rates and probabilities: NUREG/CR-4639, NUREG/CR-4550 (b) common cause failures: NUREG/CR-5497, NUREG/CR-6268 (c) AC off-site power recovery: NUREG/CR-5496, NUREG/CR-5032 (d) component recovery.	Closed: Plant specific data was obtained and used for the VD and VY systems in the 2011A PRA update. (LS2010-0047)	No impact. SR is Met at CC-II.
DA-C8-01	Basic events used to model the standby status of various plant systems use a mixture of plant-specific operational data and engineering judgment. For the Plant Service Water system and several other systems, standby estimates have been determined from procedures and operating data (see Appendix G of LS-PSA-010). For other components, assumptions are used (e.g., 50% probability of either of	DA-C8	CC-I: When required, ESTIMATE the time that components were configured in their standby status.	Finding Open.	No impact. SR met at CC-I.

TABLE RAI 01-1

2008 FPIE F&O FINDINGS

FINDING NO.	DESCRIPTION OF FINDING	APPLICABLE SRs	SR REQUIREMENT	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
	two pumps in a system is in standby). So, overall the LaSalle has some Category II attributes and some Category I attributes.				
IE-C7-01	The support system initiating event fault trees includes modifications as necessary to calculate a frequency rather than a probability. However, it is noted that the FTR treatment in the IE fault trees is different than in the corresponding mitigation fault trees. These should be consistent as either the FTR CCF mode is applicable in both versions of the fault tree or in neither version of the fault tree. Part of the reason for excluding the FTR CCF events may be related to calculating IE frequencies not consistent with operating experience. This is an indication that the FTR data used in the assessment may be too conservative. More recent generic data (e.g. from NUREG/CR-6928) for closed cooling water systems such as RBCCW and TBCCW is about an order of magnitude lower than that used in the current LaSalle analysis.	IE-C7	CC-I-III: If fault tree modeling is used for initiating events, QUANTIFY the initiating event frequency (as opposed to the probability of an initiating event over a specific time frame, which is the usual fault tree quantification model described in the Systems Analysis section, para. 4.5.4.). MODIFY as necessary the fault tree computational methods that are used so that the top event quantification produces a failure frequency rather than a top event probability as normally computed. USE the applicable requirements in the Data Analysis section, para. 4.5.6, for the data used in the fault tree quantification.	Closed: The support system initiating event fault trees were incorporated into the single top model during the 2011 PRA update. The treatment of CCF is now consistent in the fault tree and uses a standard type code for failure to run. NUREG/CR-6928 data was used during the 2011 update, which is the most current data available. This is documented in Vol. 1 & 2 of the Component Data Notebooks.	No impact. SR is met at CC-II.
IE-D3-01	The Summary Notebook includes information that attempts to identify the key sources of uncertainty in the initiating event analysis. However, with the changes to eliminate "key" from the SR definition, this SR cannot be considered met.	AS-C3 DA-E3 HR-I3 IE-D3 IF-F3 LE-G4 QU-E2	CC-I-III: DOCUMENT the key assumptions and key sources of uncertainty associated with the Accident Sequence, Data, Human Reliability, Internal Flooding, and LERF analysis. For LERF analysis including results and important insights from sensitivity studies. For Quantification, IDENTIFY key assumptions made in the	The IA team assessed the finding as partially closed.. All SRs were closed except for LE-G4: The 2009 ASME/ANS Standard revised requirements have eliminated the need to "EVALUATE the sensitivity of the results..." that existed in the ASME PRA Standard (2005). The following has been deleted	No impact. All SRs were met at CC-II except for LE-G4. Documentation of LERF uncertainty does not impact the ILRT risk assessment results.

TABLE RAI 01-1

2008 FPIE F&O FINDINGS

FINDING NO.	DESCRIPTION OF FINDING	APPLICABLE SRs	SR REQUIREMENT	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
			development of the PRA model.	from the 2005 ASME/ANS PRA Standard: "EVALUATE the sensitivity of the results to key model uncertainties and key assumptions using sensitivity analyses (1) For specific applications, key assumptions and parameters should be examined both individually and in logical combinations. " The uncertainty analysis was updated as part of the 2011A PRA update. The uncertainty analysis follows the current industry guidance as documented in NUREG-1855 and associated EPRI reports to identify both generic and plant specific modeling uncertainties and whether they qualify as candidate uncertainties. Refer to the LS-PSA-013, LaSalle Summary Notebook, for additional details on the uncertainty analysis. Appendix B of the Summary Notebook provides postulated modeling uncertainties identified through a systematic structured process using a methodology developed by EPRI.	

TABLE RAI 01-1

2008 FPIE F&O FINDINGS

FINDING NO.	DESCRIPTION OF FINDING	APPLICABLE SRs	SR REQUIREMENT	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
AS-A9-01	The use of MAAP to develop short term timing for HRA calculations in ATWS sequences is not judged appropriate by the review team. The timing should be based on a more realistic analysis. If it is decided to continue to use MAAP for ATWS, explain your rationale for doing so and discuss any limitations of the analysis	AS-A9	CC-II: USE realistic, applicable (i.e., from similar plants) thermal hydraulic analyses to determine the accident progression parameters (e.g., timing, temperature, pressure, steam) that could potentially affect the operability of the mitigating systems.	Closed : The limitations of MAAP and the use of MAAP for ATWS as described in Table 1.3-1 of the Success Criteria Notebook. MAAP is not used in the LaSalle PRA to assess the peak RPV pressure following an ATWS. Specialized GE codes (REDY, ODYN, TRACG) have been used in setting the ATWS response during the initial pressurization. This was a documentation issue only. No impact on quantification.	No impact. SR is met at CC-II.
AS-B2-01	The modeling of Station Blackout assumes that, following recovery of offsite power, sufficient mitigating systems will be available to prevent core damage. The availability of mitigating systems should be explicitly considered in the event tree modeling.	AS-B2	CC-I-III: IDENTIFY the dependence of modeled mitigating systems on the success or failure of preceding systems, functions, and human actions. INCLUDE the impact on accident progression, either in the accident sequence models or in the system models. For example: (a) turbine driven system dependency on SORV, depressurization, and containment heat removal (suppression pool cooling); (b) low pressure system injection success dependent on need for RPV depressurization.	Closed: The LOOP, DLOOP, SORV-L and SORV-D event trees have been revised. Event Tree Notebook Sections 5 and 6 have been updated.	No impact. SR is met at CC-II.

TABLE RAI 01-1

2008 FPIE F&O FINDINGS

FINDING NO.	DESCRIPTION OF FINDING	APPLICABLE SRs	SR REQUIREMENT	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
LE-F3-01	"This requirement is not met since the SR is tied back to items identified in QU-E2 and QU-E4. Since QU-E2 and QU-E4 are not met yet, this SR is also not met.	LE-F3	CC-I-III: IDENTIFY contributors to LERF and characterize LERF uncertainties consistent with the applicable requirements of Tables 4.5.8-2(d) and 4.5.8-2(e).	Closed: The uncertainty analysis was updated as part of the 2011A PRA update. The uncertainty analysis follows the current industry guidance as documented in NUREG-1855 and associated EPRI reports to identify both generic and plant specific modeling uncertainties and whether they qualify as candidate uncertainties. LS-PSA-013, LaSalle Summary Notebook, provides details on the uncertainty analysis. Appendix B of the Summary Notebook provides postulated modeling uncertainties identified through a systematic structured process using a methodology developed by EPRI.	No impact. SR is met at CC-II.
SC-A6-01	The success criteria notebook discusses ATWS ASME Service Level C pressure requirements based on NEDE 24222. This does not account for SRV changes made at the plant. The correct evaluation for the current LaSalle configuration is documented in GE-NE-A1300384-25-01, Rev 1, which requires a greater number of operable SRVs than is currently modeled in the PRA.	SC-A6	CC-I-III: CONFIRM that the bases for the success criteria are consistent with the features, procedures, and operating philosophy of the plant.	Closed: The discussion of Reactor Pressure Control (Section 3.3.2) the Success Criteria Notebook was updated to provide further explanation of the basis for the SRV success criteria. After careful examination, no changes were required for the ATWS SRV realistic success criteria.	No impact. SR is met at CC-II.

TABLE RAI 01-1

2008 FPIE F&O FINDINGS

FINDING NO.	DESCRIPTION OF FINDING	APPLICABLE SRs	SR REQUIREMENT	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
QU-C1-01	Section 5.3 of the LS-PSA-004 notebook discusses the HEP dependency analysis. The model was quantified using 0.1 values for all HEPs to identify dependent HEP combinations. Recovery rules were then developed for each of these combinations. However, for the base model quantification, not all of the events identified in the above process are set to 0.1 prior to application of the recovery rules. (Table 5.2-1 lists the events set to screening values, some of which are 0.01 and 0.005.) As a result it is possible that some of the dependent HEP combinations are truncated out of the master cutset list prior to recovery.	QU-C1	CC-I-III: IDENTIFY cutsets with multiple HFEs that potentially impact significant accident sequences/cutsets by requantifying the PRA model with HEP values set to values that are sufficiently high that the cutsets are not truncated. The final quantification of these post-initiator HFEs may be done at the cutset level or saved sequence level.	Closed: It was verified during the 2011A PRA update that all post-initiator HEPs in the model are set to 0.1 or higher to ensure that important events are not truncated out. Dependency Analysis was re-calculated to ensure all appropriate dependent HEP groups are captured.	No impact. SR is met at CC-II.
QU-E4-01	Clarification of RG1.200 issued in July 2007 modifies this requirement to read "For each source of model uncertainty and related assumption identified in QU-E1 and QU-E2, respectively, IDENTIFY how the PRA model is affected (e.g., introduction of a new basic event, changes to basic event probabilities, change in success criterion, introduction of a new initiating event)". Given that the requirements QU-E2 have not been met, this SR is not met. The changes to this SR as identified by the NRC via a Federal Register Notice in July of 2007 indicate that for all sources of uncertainty, respectively, IDENTIFY how the PRA model is affected. FINDING: Once items for QU-E1 and QU-E2 are identified per	QU-E4	CC-I-III: PROVIDE an assessment of the impact of the key model uncertainties on the results of the PRA.	Closed: The uncertainty analysis was updated as part of the 2011A PRA update. The uncertainty analysis follows the current industry guidance as documented in NUREG-1855 and associated EPRI reports to identify both generic and plant specific modeling uncertainties and whether they qualify as candidate uncertainties. Refer to the LS-PSA-013, LaSalle Summary Notebook, for additional details on the uncertainty analysis. Appendix B of the Summary Notebook provides postulated modeling uncertainties identified through a systematic structured process using a methodology developed	No impact. SR is now met at CC-II.

TABLE RAI 01-1

2008 FPIE F&O FINDINGS

FINDING NO.	DESCRIPTION OF FINDING	APPLICABLE SRs	SR REQUIREMENT	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
	the new requirements, identify how the PRA model is affected (e.g. introduction of a new basic event, changes to basic event probabilities, change in success criterion, introduction of a new initiating event) for each item.			by EPRI.	
QU-F4-01	Documentation for the characterization of the sources of model uncertainty and related assumptions (as identified in QU-E4) was not provided since the most recent requirements for QU-E4 were not met.	QU-F4	CC-I-III: DOCUMENT key assumptions and key sources of uncertainty, such as: possible optimistic or conservative success criteria, suitability of the reliability data, possible modeling uncertainties (modeling limitations due to the method selected), degree of completeness in the selection of initiating events, possible spatial dependencies, etc.	Closed: The uncertainty analysis was updated as part of the 2011A PRA update. The uncertainty analysis follows the current industry guidance as documented in NUREG-1855 and associated EPRI reports to identify both generic and plant specific modeling uncertainties and whether they qualify as candidate uncertainties. Refer to the LS-PSA-013, LaSalle Summary Notebook, for additional details on the uncertainty analysis. Appendix B of the Summary Notebook provides postulated modeling uncertainties identified through a systematic structured process using a methodology developed by EPRI.	No impact. SR is met at CC-II.

TABLE RAI 01-2

2008 FPIE PEER REVIEW SRS NOT MET

SRs	SR CC-II REQUIREMENT	APPLICABLE FINDING(S)	2008 ASSESSMENT COMMENTS	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
HR-A1	For equipment modeled in the PRA, IDENTIFY, through a review of procedures and practices, those test and maintenance activities that require realignment of equipment outside its normal operational or standby status.	HR-A1-01 (F) Note: (F) denotes finding, (S) suggestion)	This required technical approach is probably met during the review to determine the pre-initiator HEPs, however, there is no list or documentation showing the procedures. Therefore the specific requirements are not met.	IA agreed SR HR-A1-01 finding was addressed for HR-A1. : A pre-initiator analysis was conducted and added to LS-PSA-004, LaSalle HRA Notebook. The main sections of the notebook describe the process used. While Appendix J provides the results of the analysis. Table B-5 and Appendix C of LS-PSA-004 list applicable reviewed procedures considered in the PRA and HRA.	No impact. SR is met at CC-II.
HR-A2	IDENTIFY, through a review of procedures and practices, those calibration activities that if performed incorrectly can have an adverse impact on the automatic initiation of standby safety equipment.	HR-A1-01 (F)	This requirement is not met because documentation does not provide evidence of the procedures reviewed. It just says procedures were reviewed. This is also referenced to HR-A1 SR as well.	IA agreed SR HR-A1-01 finding was addressed for HR-A1. This finding also applies to HR-A2. Through an oversight, HR-A2 was not presented to the IA team for closure. A pre-initiator analysis was conducted and added to the LS-PSA-004, LaSalle HRA Notebook. The main sections of the notebook describe the process used. Appendix J provides the results of the analysis. Table B-5 and Appendix C of LS-PSA-004 list applicable procedures reviewed for the HRA, thereby satisfying the documentation deficiency noted in the 2008 Peer Review.	No impact. SR is met at CC-II.

TABLE RAI 01-2

2008 FPIE PEER REVIEW SRS NOT MET

SRs	SR CC-II REQUIREMENT	APPLICABLE FINDING(S)	2008 ASSESSMENT COMMENTS	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
HR-G6	CHECK the consistency of the post-initiator HEP quantifications. REVIEW the HFEs and their final HEPs relative to each other to check their reasonableness given the scenario context, plant history, procedures, operational practices, and experience.	HR-G6-01 (S)	Table 5.1-2 summarizes the post-initiator HEPs in tabular form, but no consistency check is discussed in the analysis. The final HEP values need to be compared against each other to check their reasonableness. Table 5.1-2 appears to have been assembled for this purpose, but the analysis contains no discussion of any such consistency check. This is a documentation item that is needed to meet the requirements of this SR.	IA did not evaluate. F&O IE-G6-01 is a suggestion. The SR was addressed in the 2011 PRA update. A consistency check was conducted and explicitly documented in LS-PSA-004, LaSalle HRA Notebook.	No impact. The SR is met at CC-II.
AS-C3	DOCUMENT the key assumptions and key sources of uncertainty associated with the accident sequence analysis.	IE-D3-01 (F)	The Summary Notebook includes information that attempts to identify the key sources of uncertainty in the accident sequence analysis. However, with the changes to eliminate "key" from the SR definition, this SR cannot be considered met.	IA agreed that this portion of the finding was closed. The uncertainty analysis was updated as part of the 2011A PRA update. The uncertainty analysis follows the current industry guidance as documented in NUREG-1855 and associated EPRI reports to identify both generic and plant specific modeling uncertainties and whether they qualify as candidate uncertainties. Refer to the LS-PSA-013, LaSalle Summary Notebook, for additional details on the uncertainty analysis. Appendix B of the Summary Notebook provides postulated modeling uncertainties identified through a systematic structured process using a methodology developed by EPRI.	No impact. The SR is met at CC-II.
DA-E3	DOCUMENT the key assumptions and key sources of uncertainty associated with the data analysis.	IE-D3-01 (F)	The Summary Notebook includes information that attempts to identify the key sources of uncertainty in the data analysis. However, with the changes to eliminate "key" from the SR definition, this SR cannot be considered met.	IA agreed that this portion of the finding was closed.: See SR AS-C3 comments above.	No impact. The SR is met at CC-II.

TABLE RAI 01-2

2008 FPIE PEER REVIEW SRS NOT MET

SRs	SR CC-II REQUIREMENT	APPLICABLE FINDING(S)	2008 ASSESSMENT COMMENTS	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
HR-I3	DOCUMENT the key assumptions and key sources uncertainty associated with the human reliability analysis.	IE-D3-01 (F)	The Summary Notebook includes information that attempts to identify the key sources of uncertainty in the HRA analysis. However, with the changes to eliminate "key" from the SR definition, this SR cannot be considered met.	IA agreed that this portion of the finding was closed. See SR AS-C3 comments above.	No impact. The SR is met at CC-II.
IE-D3	DOCUMENT the key assumptions and key sources uncertainty with the initiating event analysis.	IE-D3-01 (F)	The Summary Notebook includes information that attempts to identify the key sources of uncertainty in the initiating event analysis. However, with the changes to eliminate "key" from the SR definition, this SR cannot be considered met.	IA agreed that this portion of the finding was closed.. See SR AS-C3 comments above	No impact. The SR is met at CC-II.
IF-F3	DOCUMENT the key assumptions and key sources of uncertainty associated with the internal flooding analysis.	IE-D3-01 (F)	The Summary Notebook includes information that attempts to identify the key sources of uncertainty in the internal flooding analysis. However, with the changes to eliminate "key" from the SR definition, this SR cannot be considered met.	IA agreed that this portion of the finding was closed. See SR AS-C3 comments above.	No impact. The SR is met at CC-II.
LE-G4	DOCUMENT key assumptions and key sources of uncertainty associated with the LERF analysis, including results and important insights from sensitivity studies.	IE-D3-01 (F)	The Summary Notebook includes information that attempts to identify the key sources of uncertainty in the LERF analysis. However, with the changes to eliminate "key" from the SR definition, this SR cannot be considered met.	IA assessed that this portion of the finding was not closed.	No impact. LERF uncertainty does not directly impact the ILRT risk assessment.
LE-G6	DOCUMENT the quantitative definition used for significant accident than the definition used in Section 2, JUSTIFY the alternative.	LE-G6-01 (S)	The definition in the ASME standard for the significant sequence is most likely used in the LaSalle LERF analysis. However, the fact that this definition may be used is not documented in the notebooks. This will only impact the documentation of the results and number of sequences included in discussions, etc. and will not impact the results of the evaluation.	IA did not evaluate. IE-G6-01 is a suggestion.	No impact. LERF uncertainty does not directly impact the ILRT risk assessment.

TABLE RAI 01-2

2008 FPIE PEER REVIEW SRS NOT MET

SRs	SR CC-II REQUIREMENT	APPLICABLE FINDING(S)	2008 ASSESSMENT COMMENTS	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
QU-E2	IDENTIFY key assumptions made in the development of the PRA model.	IE-D3-01 (F)	The Summary Notebook includes information that attempts to identify the key sources of uncertainty in the LaSalle PRA model. However, with the changes to eliminate "key" from the SR definition, this SR cannot be considered met	IA agreed that this portion of the finding was closed. See SR AS-C3 comments above.	No impact. SR is now met at CC-II.
SY-C3	DOCUMENT the key assumptions and key sources uncertainty associated with the systems analysis.	IE-D3-01 (F)	The Summary Notebook includes information that attempts to identify the key sources of uncertainty in the systems analysis. However, with the changes to eliminate "key" from the SR definition, this SR cannot be considered met.	IA agreed that this portion of the finding was closed. See SR AS-C3 comments above.	No impact. SR is now met at CC-II.
LE-F3	IDENTIFY contributors to LERF and characterize LERF uncertainties consistent with the applicable requirements of Tables 4.5.8-2(d) and 4.5.8-2(e).	LE-F3-01 (F)	FINDING: This requirement is not met since the SR is tied back to items identified in QU-E2 and QU-E4. Since QU-E2 and QU-E4 are not met yet, this SR is also not met.	IA agreed SR LE-F3-01 finding was addressed for LE-F3. The uncertainty analysis was updated as part of the 2011A PRA update. The uncertainty analysis follows the current industry guidance as documented in NUREG-1855 and associated EPRI reports to identify both generic and plant specific modeling uncertainties and whether they qualify as candidate uncertainties. Refer to the LS-PSA-013, LaSalle Summary Notebook, for additional details on the uncertainty analysis. Appendix B of the Summary Notebook provides postulated modeling uncertainties identified through a systematic structured process using a methodology developed by EPRI.	No impact. SR is now met at CC-II.

TABLE RAI 01-2

2008 FPIE PEER REVIEW SRS NOT MET

SRs	SR CC-II REQUIREMENT	APPLICABLE FINDING(S)	2008 ASSESSMENT COMMENTS	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
QU-D1a	REVIEW a sample of the significant accident sequences/cutsets sufficient to determine that the logic of the cutset or sequence is correct.	QU-D1a-01 (S)	ER-AA-600-1015 Attachment 2, Review of Updated PRA Model, contains specific guidance for reviewing a sample of accident sequences/cutsets to determine that the logic of the cutset or sequence is correct. Sections 6.3.1 and 6.5 of LS-PSA-014 discusses the top 10 CDF and LERF cutsets, respectively. The model appears to be reasonable based on these discussions. However, the top 10 CDF cutsets represent only about 31% of the total CDF. The review team felt that additional cutsets, representing more % of the total CDF should be reviewed and discussed. In response to a query from the review team, the LaSalle PRA team stated that additional cutsets were reviewed, but were not documented. The PRA team should provide evidence that such a review was performed by documenting it in the QU NB.	IA did not evaluate. QU-D1a-01 is a suggestion. The 2008 peer review team noted "No impact on quantification". Cutsets and sequence results are reviewed during the model update process to assure changes are reasonable and expected. Suggestion QU-D1a-01 was addressed in the 2011 PRA model update. LS-PSA-014, LaSalle PRA Quantification Notebook, includes an expanded discussion of the cutsets reviewed. The detailed discussion of cutsets now includes the Top 20 cutsets for CDF and LERF. Additionally, the documentation clearly states that the top 100 cutsets have been reviewed. Finally, additional random cutset results from both significant and non-significant cutsets were reviewed.	No impact. Related suggestion has been addressed. SR now met at CC-II.

TABLE RAI 01-2

2008 FPIE PEER REVIEW SRS NOT MET

SRs	SR CC-II REQUIREMENT	APPLICABLE FINDING(S)	2008 ASSESSMENT COMMENTS	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
QU-D4	REVIEW a sampling of nonsignificant accident cutsets or sequences to determine they are reasonable and have physical meaning.	QU-D4-01 (S)	ER-AA-600-1015 Attachment 2, Review of Updated PRA Model, contains specific guidance for reviewing a sample of accident sequences/cutsets to determine that the logic of the cutset or sequence is correct. Section 2 of LS-PSA-014 Quantification Notebook documents a review of top 10 cutsets, however, there is no documentation of a review of non-significant cutsets. In response to a query from the review team, the LaSalle PRA team stated that additional non-significant cutsets were reviewed, but were not documented. The PRA team should provide evidence that such a review was performed by documenting it in the QU NB.	IA did not evaluate. QU-D1a-01 is a suggestion. Suggestion QU-D4-01 was addressed in the 2011 PRA model update. A review of non-significant cutsets was performed and documented in LS-PSA-014, LaSalle PRA Quantification Notebook.	No impact. Related suggestion has been addressed. SR now met at CC-II.

TABLE RAI 01-2

2008 FPIE PEER REVIEW SRS NOT MET

SRs	SR CC-II REQUIREMENT	APPLICABLE FINDING(S)	2008 ASSESSMENT COMMENTS	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
QU-E4	PROVIDE an assessment of the impact of the key model uncertainties on the results of the PRA.	QU-E4-01 (F)	Clarification of RG1.200 issued in July 2007 modifies this requirement to read "For each source of model uncertainty and related assumption identified in QU-E1 and QU-E2, respectively, IDENTIFY how the PRA model is affected (e.g., introduction of a new basic event, changes to basic event probabilities, change in success criterion, introduction of a new initiating event)." Given that the requirements QU-E2 have not been met, this SR is consequently not met. The changes to this SR as identified by the NRC via a Federal Register Notice in July of 2007 indicate that for all sources of uncertainty, respectively, IDENTIFY how the PRA model is affected.	IA agreed SR QU-E4-01 finding was addressed for QU-E4. The uncertainty analysis was updated as part of the 2011A PRA update. The uncertainty analysis follows the current industry guidance as documented in NUREG-1855 and associated EPRI reports. Details on the uncertainty analysis were added to LS-PSA-013, LaSalle Summary Notebook. The uncertainty analysis was updated as part of the 2011A PRA update. The uncertainty analysis follows the current industry guidance as documented in NUREG-1855 and associated EPRI reports to identify both generic and plant specific modeling uncertainties and whether they qualify as candidate uncertainties. Refer to the LS-PSA-013, LaSalle Summary Notebook, for additional details on the uncertainty analysis. Appendix B of the Summary Notebook provides postulated modeling uncertainties identified through a systematic structured process using a methodology developed by EPRI.	No impact. SR is now met at CC-II.

TABLE RAI 01-2

2008 FPIE PEER REVIEW SRS NOT MET

SRs	SR CC-II REQUIREMENT	APPLICABLE FINDING(S)	2008 ASSESSMENT COMMENTS	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
QU-F4	DOCUMENT key assumptions and key sources of uncertainty, such as: possible optimistic or conservative success criteria, suitability of the reliability data, possible modeling uncertainties (modeling limitations due to the method selected), degree of compl	QU-F4-01(F)	Clarification of RG1.200 issued in July 2007 modifies this requirement to read "DOCUMENT the characterization of the sources of model uncertainty and related assumptions (as identified in QU-E4)." Given that the requirements QU-E4 have not been met, this this SR is consequently not met.	IA agreed SR QU-F4-01 finding was addressed for QU-F4. The uncertainty analysis was updated as part of the 2011A PRA update. The uncertainty analysis follows the current industry guidance as documented in NUREG-1855 and associated EPRI reports to identify both generic and plant specific modeling uncertainties and whether they qualify as candidate uncertainties. Refer to the LS-PSA-013, LaSalle Summary Notebook, for additional details on the uncertainty analysis. Appendix B of the Summary Notebook provides postulated modeling uncertainties identified through a systematic structured process using a methodology developed by EPRI.	No impact. SR is now met at CC-II.
QU-F6	DOCUMENT the quantitative definition used for significant basic event, significant cutset, significant accident sequence. If other than the definition used in Section 2, JUSTIFY the alternative.	QU-F6-01 (S)	The La Salle analysis appears to use typical definitions for significant basic event, significant cutset and significant accident sequence, however such definitions are never explicitly stated. Therefore, the SR is not met. Document the quantitative definition used for significant basic event, significant cutset, and significant accident sequence.	IA did not evaluate. QU-F6-01 is a suggestion. QU-F6-01 was addressed in the 2011 PRA model update The definition of significant was added to the LS-PSA-014, LaSalle Quantification Notebook. This notebook includes quantification results for both CDF and LERF. Therefore, this notebook is the appropriate place to document this definition.	No impact. Related suggestion has been addressed. SR now met at CC-II.

TABLE RAI 01-2

2008 FPIE PEER REVIEW SRS NOT MET

SRs	SR CC-II REQUIREMENT	APPLICABLE FINDING(S)	2008 ASSESSMENT COMMENTS	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
SC-B5	"CHECK the reasonableness and acceptability of the results of the thermal/hydraulic, structural, or other supporting engineering bases used to support the success criteria. Examples of methods to achieve this include:	SC-B5-01 (S)	While the LS-PSA-003 notebook provides some selected comparison of RMEIP MELCOR results to more recent MAAP runs, there is no documented comparison of how the LaSalle success criteria compare to those used for sister plants or other similar comparisons as required for this SR. However, the success criteria used for LaSalle appear to be consistent with those of other similar BWRs. The LS-PSA-003 documentation should be enhanced to include a section that compares the LaSalle success criteria to those used in the PRAs of other similar BWRs.	IA did not evaluate. SC-B5-01 is a suggestion. SC-B5-01 was addressed in the 2011 PRA model update. The success criteria have been reviewed. Comparisons of the resulting success criteria were reviewed and compared with other similar plants using the MAAP computer code as a basis, with NUREG-1150 BWR/5 plant results, and with NEDO 24708A (GE report on core damage prevention success criteria). No anomalies are identified in the LaSalle success criteria.	No impact. Related suggestion has been addressed. SR now met at CC-II.

TABLE RAI 01-3

2008 FPIE PEER REVIEW SRS MET AT CC-I

SRs	SR CC-I AND II REQUIREMENTS	APPLICABLE FINDING (F) OR SUGGESTION (S)	ASSESSMENT COMMENTS	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
DA-C10	CC-I: When using surveillance test data, REVIEW the test procedure to determine whether a test should be credited for each possible failure mode. COUNT only completed tests or unplanned operational demands as success for component operation. CC-II: When using surveillance test data, REVIEW the test procedure to determine whether a test should be credited for each possible failure mode. COUNT only completed tests or unplanned operational demands as success for component operation. If the component failure mode is decomposed into sub-elements (or causes) that are fully tested, then USE tests that exercise specific sub-elements in their evaluation. Thus, one sub-element sometimes has many more successes than another. [Example: a diesel generator is tested more frequently than the load sequencer. IF the sequencer were to be included in the diesel generator boundary, the number of valid tests would be significantly decreased.]	DA-C6-01 (S)	LS-PSA-010 Component Data Notebook, Appendix C, page C-24 states "No actual data or estimates for these parameters are provided by system managers. Data from the MSPI basis document, Scoping and Performance Criteria Document, and 2003 data notebook is used." However, no discussion of how surveillance tests were used is provided in the PRA. CC-I is met, but it is unclear if CC-II requirements are met.	DA-C6-01 is a suggestion and is currently open.	No impact. SR is met at CC-I.

TABLE RAI 01-3

2008 FPIE PEER REVIEW SRS MET AT CC-I

SRs	SR CC-I AND II REQUIREMENTS	APPLICABLE FINDING (F) OR SUGGESTION (S)	ASSESSMENT COMMENTS	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
DA-C8	CC-I: When required, ESTIMATE the time that components were configured in their standby status. CC-II: When required, USE plant-specific operational records to determine the time that components were configured in their standby status.	DA-C8-01 (F)	Basic events used to model the standby status of various plant systems use a mixture of plant-specific operational data and engineering judgment. For the Plant Service Water system and several other systems, standby estimates have been determined from procedures and operating data (see Appendix G of LS-PSA-010). For other components, assumptions are used (e.g., 50% probability of either of two pumps in a system is in standby). So, overall the LaSalle has some CC-II attributes and some CC-I attributes.	Finding DA-C8-01 is open.	No impact. SR is met at CC-I.
HR-B1	Cat. I: If screening is performed, ESTABLISH rules for screening classes of activities from further consideration. Example: Screen maintenance and test activities from further consideration only if the plant practices are generally structured to include independent checking of restoration of equipment to standby or operational status on completion of the activity. CC-II: If screening is performed, ESTABLISH rules for screening classes of activities from further consideration. Example: Screen maintenance and test activities from further consideration only if (a) Equipment is automatically re-aligned on system demand (b) Following maintenance activities, a post-maintenance functional test is performed that reveals	HR-B1-01 (F)	There does not appear to be any screening list or discussion except for dependency. The identification process is described in the HRA notebook section 2.3.2 and information located in the system notebooks (general response from utility). This requirement is not met as per the CC-II requirements of the ASME Standard.	IA agreed SR HR-B1-01 finding was addressed for HR-B1.A pre-initiator screening was performed as part of the 2011A PRA update and is documented in Appendix J of LS-PSA-004, LaSalle HRA Notebook. (URE LS2010-0043)	No impact. SR is now met at CC-II.

TABLE RAI 01-3

2008 FPIE PEER REVIEW SRS MET AT CC-I

SRs	SR CC-I AND II REQUIREMENTS	APPLICABLE FINDING (F) OR SUGGESTION (S)	ASSESSMENT COMMENTS	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
	misalignment. (c) Equipment position is indicated in the control room, status is routinely checked, and realignment can be affected from the control room, or (d) Equipment status is required to be checked frequently (i.e., at least once a shift)				
IF-C3b	CC I: No requirement for inter-area propagation given that flood areas are independent (see SR IF-A1a). CC II: IDENTIFY inter-area propagation through the normal flow path from one area to another via drain lines; and areas connected via back flow through drain lines involving failed check valves, pipe and cable penetrations (including cable trays), doors, stairwells, hatchways, and HVAC ducts. INCLUDE potential for structural failure (e.g., of doors or walls) due to flooding loads.	IF-C3b-01 (S)	Appendix D addresses flow through drain lines (e.g., 3I4 and 3J5) and addresses doors as well. RG1.200 appends the CC-II requirements to include the potential for barrier unavailability, including maintenance. Barrier unavailability does not appear to have been discussed, however given the nature of the major flooding scenarios it will probably make little difference.	Open. IF-C3b-01 is a suggestion.	No impact. SR met at CC-I.
IE-A7	CC I: No requirement for precursor review. CC II: REVIEW plant-specific operating experience for initiating event precursors, for the purpose of identifying additional initiating events. For example, plant specific experience with intake structure clogging might indicate that loss of intake structures should be identified as a potential initiating event.	IE-A7-01 (S)	Although a detailed plant-specific precursor review was not reported, industry wide initiating event precursors are considered and documented where appropriate in the LaSalle IE analysis (e.g. loss of station cooling, ISLOCA, loss of multiple dc buses, reference leg break, and the various LOCA categories). Additionally, plant-specific pre-cursors are specifically considered in the plant water intake evaluation provided in Appendix G.1 of the component data notebook.	IA did not evaluate. IE-A7-01 is a suggestion. IE-A7-01 was addressed in the 2011 PRA model update. Section 2.3.2.5 of the IE Notebook (LS-PSA-001) has been revised to cite operating crew and system manager interviews. System manager interview results are documented in Appendix D of the system notebooks.	No impact. SR is now met at CC-II.

TABLE RAI 01-3

2008 FPIE PEER REVIEW SRS MET AT CC-I

SRs	SR CC-I AND II REQUIREMENTS	APPLICABLE FINDING (F) OR SUGGESTION (S)	ASSESSMENT COMMENTS	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
QU-F3	CC I: DOCUMENT the significant contributors (such as initiating events, accident sequences, basic events) to CDF in the PRA results summary CC II: DOCUMENT the significant contributors (such as initiating events, accident sequences, basic events) to CDF in the PRA results summary. PROVIDE a detailed description of significant accident sequences or functional failure groups.	QU-F3-01 (S)	A detailed description of accident sequences is provided for the top 10 accident sequences which equates to ~70% of the CDF. To meet this SR, a detailed description of significant accident sequences is required. Since no definition of significant is provided in QU-F6, then a detailed description for up to 95% of the accident sequences is required to meet this SR.	IA did not evaluate. QU-F3-01 is a suggestion. QU-F3-01 was addressed in the 2011 PRA model update. A detailed description of approximately 95% of the accident sequences was added to LS-PSA-014, LaSalle Quantification Notebook.	No impact. SR is now met at CC-II.
SY-A4	CC I: CONFIRM that the system analysis correctly reflects the as-built, as-operated plant through discussions with system engineers and plant operations staff. CC II: PERFORM plant walkdowns and interviews with system engineers and plant operators to confirm that the systems analysis correctly reflects the as-built, as-operated plant.	SY-A4-01 (S)	System engineer interviews are documented in the respective system notebooks. Operator interviews are documented in the HRA notebook. Each system notebook contains an appendix documenting interviews with system managers, however, there is little mention (if any at all) of walkdowns performed in support of the system analyses. The impression received is that walkdowns were performed some time ago for a much earlier revision but have not been retained in the system notebooks. Interview with plant engineers has been documented. However, plant walkdown details are not provided in the SBLC, CSCS, HPCS and RCIC NBs.	Open. IA did not evaluate. SY-A4-01 is a suggestion.	No impact. SR is met at CC-I.

TABLE RAI 01-4

2014 FPIE SELF ASSESSMENT SRS MET AT CC-I

SRs	SR CC-I AND II REQUIREMENTS	ASSESSMENT COMMENTS	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
SC-A5	CC-I: "... For sequences in which stable plant conditions would not be achieved by 24 hr using the modeled plant equipment and human actions, ASSUME core damage." CC-II: "... For sequences in which stable plant conditions would not be achieved by 24 hr using the modeled plant equipment and human actions, PERFORM additional evaluation or modeling by using an appropriate technique. Examples of appropriate techniques include: (a) assigning an appropriate plant damage state for the sequence; (b) extending the mission time, and adjusting the affected analyses, to the point at which conditions can be shown to reach acceptable values; or (c) modeling additional system recovery or operator actions for the sequence, in accordance with requirements stated in Systems Analysis (2-2.4) and Human Reliability (2-2.5) to demonstrate that a successful outcome is achieved." For complete SR text, refer to the ASME/ANS Standard.	Mission times are discussed in Success Criteria (LS-PSA-003). The mission times for failure to run calculations are assessed at 24 hours or less if specifically justified. Extending the FTR mission time beyond 24 hours for loss of DHR sequences is considered to be an unnecessary complication and does not affect PRA insights nor does it significantly affect its quantitative evaluation. The evaluation of safe stable states in a PSA has generally involved the assessment of equipment operation and operator actions over an extended period of time. This extended period of time is nominally taken to be sufficiently long such that offsite resources can be brought to bear to mitigate or further prevent accident progression. The considerations that have dominated the choice of the mission time are as follows: • Equipment failure rates (failures/hour) are judged to be too conservative for times greater than a few hours of operation. • For times greater than a few hours, the ability to repair and recover equipment can compete with the failure rate such that there can be considered to be a steady state equilibrium condition reached. • For times greater than 24 hours, the TSC and EOF would be manned, and additional expertise could be available by phone or transported to these facilities. • For times greater than 24 hours, it is considered highly likely that offsite resources (e.g., equipment, power, vehicles) would be available as back-ups to primary methods of prevention and mitigation. • From a risk perspective, actual data from natural and man-caused disasters have indicated that public evacuations can be effectively carried out in time frames of less than 24 hours. Therefore, prevention of accidents through 24 hours of mission time have the largest potential for early health effects risk reduction.	SR is met at CC-I.	No impact. SR is met at CC-I.

TABLE RAI 01-4

2014 FPIE SELF ASSESSMENT SRS MET AT CC-I

SRs	SR CC-I AND II REQUIREMENTS	ASSESSMENT COMMENTS	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
		• Finally, beyond time frames of 24 hours, "ad hoc" procedures can be written and reviewed to perform alignments and equipment usage that are not part of current plant practices or training. Such ad hoc procedures and equipment usage can cover such a wide spectrum of possibilities that it is judged not useful to develop all possible contingencies at this time. Based on the above considerations, it has been considered in past PSAs that it is to appropriate to use an equipment mission time of 24 hours. This consideration dictates the use of equipment "run" failure rates (per hour) coupled with a 24 hour mission time to calculate the "run" failure probability of equipment. This calculated "run" failure probability is then treated conservatively by applying this "run" failure probability as a failure that is postulated at time zero.		
HR-D3	CC-I: No requirement for evaluating the quality of written procedures, administrative controls, or human-machine interfaces. CC-II: For each detailed human error probability assessment, INCLUDE in the evaluation process the following plant-specific relevant information: (a) the quality of written procedures (for performing tasks) and administrative controls (for independent review) (b) the quality of the human-machine interface, including both the equipment configuration, and instrumentation and control layout	A qualitative summary of the performance shaping factors is included for each detailed HEP. Although this will not significantly impact the HRA results, future PRA updates should include an assessment of the quality of plant written procedures and administrative controls as well as human-machine interface for both pre-initiator and post-initiator human actions.	SR is met at CC-I.	No impact. SR is met at CC-I.

TABLE RAI 01-4

2014 FPIE SELF ASSESSMENT SRS MET AT CC-I

SRs	SR CC-I AND II REQUIREMENTS	ASSESSMENT COMMENTS	CURRENT STATUS / COMMENT	IMPORTANCE TO APPLICATION
DA-C7	CC-I: ESTIMATE number of surveillance tests and planned maintenance activities on plant requirements. CC-II: BASE number of surveillance tests on plant surveillance requirements and actual practice. BASE number of planned maintenance activities on plant maintenance plans and actual practice. BASE number of unplanned maintenance acts on actual plant experience.	Component Data Notebook (LS PSA-010) – App C & F The failure data was based on actual plant data. However, the number of demands and exposure data was based on actual data or estimates from the LaSalle System Managers. Estimating number of demands and exposure data meets CC-I for the ASME PRA Standard.	SR is met at CC-I.	No impact. SR is met at CC-I.
DA-C8	CC-I: When required, ESTIMATE the time that components were configured in their standby status. CC-II: When required, USE plant-specific operational records to determine the time that components were configured in their standby status.	Component Data Notebook (LS PSA-010) – App C & F Standby failure data development should base the time that components were in standby on plant operational records. This should be documented appropriately in the Component Data Notebook (LS PSA-010). This was highlighted as finding DA-C8-01 during the 2008 LS Peer Review.	SR is met at CC-I.	No impact. SR is met at CC-I.

PRA RAI 02

As described in Sections A.2.3 and A.2.4 of the LAR, the LSCS internal events and internal flooding PRA last underwent a full-scope peer review in 2008, and since then, the PRA has been, at a minimum, changed to resolve, at least in part, resulting F&Os and a number of gaps identified during the 2014 self-assessment. While some of these changes are discussed in the LAR, others, as indicated in PRA RAI 01, are not. The ASME/ANS PRA standard RA-Sa-2009 defines a PRA upgrade as:

"...incorporation into a PRA model of a new methodology or significant changes in scope or capability that impact the significant accident sequences or the significant accident progression."

a) Please provide an overview of all changes, including any new analyses or incorporation of new methodology, performed in the internal events and internal flooding PRA model that have occurred following the 2008 peer review, and justify whether any of these changes fit the definition and criteria of the PRA Standard for a PRA upgrade.

b) If a focused-scope peer-review is deemed necessary based on the response to item a above, please provide the results of such a review addressing the associated F&Os and their disposition.

Response to RAI 02

There have been two updates to the internal events PRA model since the performance of the 2008 peer review. The updates were the 2011 and 2014 PRA.

The 2008 PRA peer review was performed using the NEI 05-04 process and the ASME PRA Standard ASME RA-Sc-2007 version along with RG 1.200, Revision 1. There has not been an internal events PRA peer review since the 2008 peer review; however, as previously noted in the response to RAI 01, an Independent Assessment Team recently reviewed the 2008 peer review findings for closure. In their review, the 2017 LaSalle County Generation Station PRA Independent Assessment (IA) team used the following standards and references:

- NEI 05-04, Process for Performing Follow-on PRA Peer Reviews Using the ASME PRA Standard, Nuclear Energy Institute, Rev. 2, November 2008. This document defines the review process used in the BWROG industry peer reviews.
- NEI Appendix X to NEI 05-04, 07-12 and 12-06, Close Out of Facts and Observations (F&Os), Nuclear Energy Institute, Rev. 0, February 2017.
- Standard for Level1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications, ASME RA-Sa-2009, February 2009. This document defines the review assessment criteria.
- Latest ASME PRA Standard interpretations from the ASME website.
- NRC Regulatory Guide 1.200, An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities, Rev. 2, March 2009.

- U.S. Nuclear Regulatory Commission Memo to Stacey L. Rosenberg, Branch Chief, PRA Licensing Branch, Division of Risk Assessment, U.S. Nuclear Regulatory Commission Staff Expectations for an Industry Facts and Observations Independent Assessment Process, May 1, 2017.

As part of the IA review, the utility provided information to support that the changes made to address each finding were considered maintenance of the PRA model and not upgrades. The IA team reviewed the findings and associated PRA model changes and PRA documentation supporting their closure and determined that the PRA model changes were maintenance activities and not upgrades. The IA team documented that each change submitted for review was maintenance in Table A-1 of the Independent Assessment Report (LSGS Unit 2 PRA Facts and Observations Independent Assessment Report, dated June 2017).

Separately, the 2011 PRA Model Changes and 2014 PRA Model Changes were reviewed to determine if the changes constituted an upgrade to address an NRC RAI associated with a different LaSalle submittal as requested in a letter from B. Vaida (U.S. Nuclear Regulatory Commission) to B. C. Hanson dated July 10, 2017 (ADAMS Accession No. ML 17181A197). The RAI response upgrade evaluation is documented in RS-17-102 EGC letter from Patrick R. Simpson, Manager – Licensing, EGC, LLC to the U.S. Nuclear Regulatory Commission, dated July 20, 2017.

The evaluation documented in RS-17-102 is applicable to the RAI 02 response and therefore, is not repeated. (Please see RS-17-102 for details associated with the evaluation.) A brief summary of the evaluation, grouped according to model updates (i.e., 2011 and 2014), is as follows:

2011 PRA Model Changes

Based on the review of the changes during the 2011 update, all changes were found to be maintenance, not PRA upgrades.

2014 PRA Model Changes

Based on the review of the changes during the 2014 update, all changes were found to be maintenance, not PRA upgrades.

Summary Conclusion

All changes to the PRA model since the version reviewed by the 2008 peer review have been reviewed and assessed with regards to being PRA maintenance or upgrades, as documented in EGC Letter RS-17-102, dated July 20, 2017. Each change (or group of changes) was reviewed against examples of PRA Maintenance and PRA upgrades found in the 2009 ASME/ANS PRA Standard (ASME/ANS RA-Sa-2009, dated March 2009). Each change was justified as PRA maintenance as defined in the ASME/ANS PRA standard. Additionally, the Independent Assessment conducted for the purpose of F&O closure also identified all PRA changes associated with F&O resolution involved only PRA maintenance. Therefore, a focused scope peer review on affected technical elements is not required.

PRA RAI 03

Table A-2 of Attachment 3 to the LAR lists three unresolved gaps from the 2014 internal events and internal flooding PRA self-assessment. Gap # 1 identified issues with the screening of flood locations stating that the screening process used individual Conditional Core Damage Probabilities (CCDPs), instead of the "bounding" CCDP, which is defined in the PRA standard (SR IFQU-A3) as "the highest of the CCDP values for the flood scenarios in an area." Therefore it appears that LSCS internal flooding PRA may screen out more flood sources than recommended by the PRA standard. Gap # 2 identified that surveillance test data were not used in data development for the LSCS internal events PRA. The resolution states that "it is expected that the assumptions used to collect data from Maintenance Rule and [Mitigating Systems Performance Index] MSPI data sources, yield acceptable data" and review of surveillance test data "will likely result in very few changes and likely negligible changes to failure probabilities." Gap # 3 indicates that Environmental Qualification is credited for operability of instrumentation affected by spray effects.

The licensee's disposition of these gaps states that the overall impact of these finding is minimal, but did not provide any supporting justification. Please provide justification, preferably quantitatively (e.g., through sensitivity analyses), that these gaps have no impact on the application.

Response to RAI 3 Gap #1

Gap # 1 identified issues with the screening of flood locations stating that the screening process used individual Conditional Core Damage Probabilities (CCDPs), instead of the "bounding" CCDP, which is defined in the PRA standard (SR IFQU-A3) as "the highest of the CCDP values for the flood scenarios in an area."

The LaSalle Internal Flood Analysis (LS-PSA-012, Rev. 2, Vol. 1) Appendix A - *Flood Zone Screening Analysis* was reviewed for areas screened out based on quantitative analysis. One area was screened out (HPCS Cubicle, 694') based on a quantitative calculation of CDF. The evaluation considered a worst case ECCS suction pipe break into a corner room with a calculated CDF <5E-11/yr. The CDF calculation was bounding in that it evaluated multiple system losses of RHR A, LPCS, and RCIC and would represent use of a bounding CCDP. The other three 694' corner rooms were retained in the flooding based on other considerations.

Upon review screening of this HPCS Cubicle appears to meet the intent of SR IFQU-A3 (i.e., use of bounding CCDP). Therefore, there is no impact to the ILRT risk assessment.

Response to RAI 3 Gap #2

Gap # 2 identified that surveillance test data were not used in data development for the LSCS internal events PRA. The resolution states that "it is expected that the assumptions used to collect data from Maintenance Rule and [Mitigating Systems Performance Index] MSPI data sources, yield acceptable data" and review of surveillance test data "will likely result in very few changes and likely negligible changes to failure probabilities."

SR DA-C6 specifies estimation of plant-specific demands for standby components on the basis of surveillance tests, maintenance acts, and operational demands. Currently in the PRA, estimates of demands for standby components are based on a mixture of data sources such as plant process computer data, test frequency and associated procedure review (e.g., # cycles per test times the number of tests per year), MSPI basis document data, operator logs, work clearance order database, and system manager estimates. In the PRA self-assessment, these varied approaches were not judged to meet the strict definition of the SR. The plant data sources and developed demand estimates, however, are judged to be reasonable to support the PRA. Pursuing plant demand data per the explicit direction in the SR is not expected to result in significant impacts upon the PRA results.

SR DA-C10 relates to using surveillance test data and reviewing the test procedure to determine whether a test should be credited for every possible failure mode. Currently in the PRA, use of surveillance procedures is only performed a small proportion of the time (e.g., standby components) and the procedures are not always reviewed in consideration of every possible failure mode, however, the test estimates developed based on surveillance test data review is judged reasonable to support the PRA. Pursuing more detailed review of surveillance procedures is not expected to result in significant impacts upon the PRA results.

The 2014 PRA data collection relied on MSPI data for the following component failure modes:

- Emergency Diesel Generators (EDG) Unavailability, Failure to Start (FTS) and Failure to Run (FTR)
- EDG Cooling Water Pump FTS and FTR
- RHR Service Water (RHRSW) Pump Train Unavailability, FTS and FTR
- RHRSW Strainer Unavailability
- RHRSW MOV Unavailability

RCIC, HPCS and RHR components are also monitored under the MSPI program. The data for these components is from the Maintenance Rule program. Most failure to start and failure to run demands are from surveillance testing.

The MSPI program requires a review of surveillances procedures to determine applicable demands.

The LaSalle PRA basic events representing component failure (e.g. failure to run, failure to open, failure to close, etc.) were reviewed for importance. Forty-eight basic events had a Fussell-Vesely >5E-03 or RAW >2.0. These 48 basic events used 19 different type codes. These type codes were reviewed for reliance on surveillance test data. These type codes and their reliance on surveillance data is shown below.

TABLE 3-1
RISK SIGNIFICANT BASIC EVENT DATA SOURCES

TYPE CODES	DATA NOTEBOOK - RELIANCE ON TEST DATA	SURVEILLANCE DATA RELIED UPON	COMMENTS
AC HB K	AC Circuit Breaker (4.16kVAC or 6.9KVAC) Fails to Close	Partial	Estimated based on pump demand data across many systems. Highly unlikely that a surveillance not fully aligned with an accident condition would have a significant impact to the demands used for this type code.
DG DG A	Diesel Generator Fails to Start	Yes	MSPI Data
DG DG X	Diesel Generator Fails to Run	Yes	MSPI Data
DG PM A	EDG Cooling Water Pumps Fail to Start	Yes	MSPI Data
DG PM X	EDG Cooling Water Pumps Fail to Run	Yes	MSPI Data
LP PM A	LPCS/RHR Pumps Fail to Start	Partial	System Manager input based on plant data. RHR surveillance procedures reviewed under MSPI Program. LPCS pumps are not included in the MSPI Program. LPCS pumps are manually started for both accident conditions and surveillances. Surveillance demands are appropriate for PRA failure data.
LP PM X	LPCS/RHR Pumps Fail to Run	Partial	System Manager input based on plant data. RHR surveillance procedures reviewed under MSPI Program. LPCS pumps are not included in the MSPI Program. LPCS pumps are run under low pressure in both surveillances and accident conditions. Surveillance demands are appropriate for PRA failure data.
N/A	Drywell to Suppression Chamber Vacuum Breaker Failure to Reclose	No	Generic - No site specific data available.
NR XV K	Raw Water, Non-Safety Manual Valves Fail to Close	No	Generic - No site specific data available.
RI PT X	RCIC Turbine Driven Pumps Fail to Run	Partial	Data spanned from 1/1/2006 to 12/31/2013. Total run time 228 hours. Data included a 12 hour run in pressure control mode and 57 hours during a Loss of Off-Site Power event. RCIC surveillance procedures are reviewed under the MSPI Program.
SC MV D	Clean System, Safety MOV Fails to Open	Partial	Based on plant data, surveillances and engineering judgement.
SC MV K	Clean System, Safety MOV Fails to Close	Partial	Based on plant data, surveillances and engineering judgement.

TABLE 3-1

RISK SIGNIFICANT BASIC EVENT DATA SOURCES

TYPE CODES	DATA NOTEBOOK - RELIANCE ON TEST DATA	SURVEILLANCE DATA RELIED UPON	COMMENTS
SR MV D	Raw Water, Safety MOVs Fail to Open	Partial	Based on MSPI data and screen back-wash operations occurring once every 8 hours (timer sequence).
SY PM A	Raw Water, Safety MOVs Fail to Close	Partial	Based on MSPI data and screen back-wash operations occurring once every 8 hours (timer sequence).
VD DM D	HVAC Damper Fails to Open	No	Generic - No site specific data available.
VD DM K	HVAC Damper Fails to Close	No	Generic - No site specific data available.
VY FN A	Room Cooler Fan Fails to Start	No	System Manager input based on plant data.
VY FN X	Room Cooler Fan Fails to Run	No	System Manager input based on plant data.

The above data shows that risk significant basic events are only partially reliant on surveillances. In addition, many of the surveillances associated with this data are associated with MSPI components. Further reviews of surveillance procedures beyond that performed for MSPI components is not expected to change the PRA data collection demand and unavailability data. Therefore, a quantitative bounding analysis due to not fully complying with the SR requirements is not justified.

Response to Gap #3

Gap #3 indicates that Environmental Qualification (EQ) is credited for operability of instrumentation affected by spray effects.

The Internal Flooding (IF) Assessment notebooks were re-reviewed and no evidence was found for taking credit for Environmental Qualifications for operability of instrumentation affected by spray effects (i.e., counter to the statement in the Gap assessment), other than for equipment located in the drywell which is designed to withstand the impacts of a design basis LOCA. Pipe breaks inside containment are addressed by LOCA scenarios in the FPIE model rather than internal flooding scenarios.

Table A.3-1 of the IF notebook (Vol. 1) identifies that spray upon instrumentation is assumed to result in loss of signal. Table A.3-2 of the IF Notebook identifies potential spray impacts for each plant area and in no case is EQ cited for preserving credit for instrumentation.

It is also noted that the 2008 peer review did not identify an issue with treatment of spray on equipment.

It is additionally noted, that any spray impacts upon instruments would be expected to have a negligible impact on CDF. Significant divisional separation exists, and system/train functional redundancy coupled with low local spray frequency will likely result in a negligible increase in CDF.

Based on the above discussion, the previously identified gap will not impact the conclusions of the ILRT risk assessment.

PRA RAI 04

Sections 3.3.2 and A.2.5 of the LAR indicates that the LSCS fire PRA (FPRA) underwent a peer review in December 2015 against the ASME/ANS PRA standard RA-Sa-2009. However, it is not clear to the NRC staff whether this peer review also considered the clarifications and qualifications of RG 1.200, Revision 2.

Please provide clarification whether the 2015 FPRA peer review addressed these clarifications and qualifications, and if not, provide the results of a self-assessment that does, identifying any gaps and assessing their impact on the application.

Response to RAI 04

The 2015 FPRA Peer Review team did include clarification and qualifications of RG 1.200 Revision 2. Section 1 of the 2015 FPRA Peer Review report notes the following:

> "This report documents the December 2015 Peer Review of the LaSalle County Nuclear Generating Station Plant (LaSalle) fire probabilistic risk assessment (FPRA) using the NEI 07-12 process and the ASME / ANS PRA Standard (ASME/ANS RA-Sa-2009) along with the NRC clarifications provided in Regulatory Guide 1.200, Rev. 2."

Evidence was found in the peer review report that Reg. Guide clarifications and qualifications were considered. For example, the Peer Review report specifically noted the Reg. Guide 1.200, Rev. 2 Table A-4 qualification requirements for expertise in Fire HRA.

PRA RAI 05

Section 5.7.5 of Attachment 3 of the LAR states that the fire CDF estimate used to support the Integrated Leak Rate Test (ILRT) application is bounding, and the licensee identifies some general conservatisms associated with the LSCS FPRA in Section 5.7.2 of Attachment 3 to support this conclusion. However, the NRC staff observes that a number of non-conservatisms documented by Finding-level F&Os in Table A-4 of the LAR do not appear to have been resolved. Additionally, while the licensee's dispositions in Table A-4 state that the resolution of such F&Os would be inconsequential to the application, no supporting justification is provided. These F&Os include:

- F&O 1-1 regarding the impact of spurious operation of instruments on operator actions;
- F&O 1-9 regarding the treatment of instrumentation and support system dependencies as well as interlock circuits;
- F&Os 1-19, 6-9, 6-11 and 6-14 regarding cable selection;
- F&O 1-20 regarding proper polarity hot shorts on ungrounded DC circuits;
- F&O 1-23 regarding the human reliability dependency analysis;
- F&O 2-8 regarding fire damage to exposed structural steel;
- F&O 3-4 regarding recovery of instrument air;

- F&O 3-6 regarding credit given to recovery of cognition errors;
- F&O 3-11 regarding spurious closure of minimum flow valves;
- F&O 3-13 regarding instrument air logic modeling;
- F&O 4-1 regarding the physical analysis units included within the global analysis boundary;
- F&O 4-17 regarding unavailability of fire detection and suppression systems;
- F&O 4-18 regarding the time to fire detector operation; and
- F&O 6-12 regarding assumed cable routing.

Moreover, the NRC staff observes that the LSCS FPRA, as stated in Section 5.7.1.1 of Attachment 3 of the LAR states, is "an interim implementation of NUREG/CR-6850." For this reason, it is not clear to the NRC staff to what extent the FPRA is consistent with the current state-of-the-art for FPRA (including guidance in NUREG/CR-6850 and all accepted guidance since NUREG/CR-6850 was first issued).

a) Please provide justification, preferably quantitatively (e.g., through sensitivity analyses), whether the estimated fire CDF and LERF are bounding, considering non-conservatisms documented by unresolved F&Os and the current state-of-the-art for FPRA (including guidance in NUREG/CR-6850 and all accepted guidance since NUREG/CR-6850 was first issued).

b) Please provide clarification whether the FPRA makes use of any "unapproved/unreviewed analysis methods," and if so, assess the impact on the application of replacing such methods with alternative methods that are acceptable to the NRC.

Response to RAI 05

a) The Fire CDF and LERF used in the LaSalle ILRT risk assessment are estimated to be bounding and overall conservative even though select individual unresolved F&Os may be potentially non-conservative. Table 5-1 presents the individual F&Os and provides additional discussion and justification for each for its estimated impact upon the risk estimate for the application. Although the ILRT risk assessment identified some general conservatisms inherent in the FPRA methods and results, the following additional items contributing to overall conservatism are noted based on recent efforts to improve the realism of the FPRA:

   - LaSalle has completed installation of a Hardened Containment Vent System (HCVS) for Unit 2, and installation for Unit 1 will be completed in the Spring 2018 outage. The 2015 FPRA model included preliminary design based logic for the HCVS for sensitivity purposes. For that model, credit of the HCVS decreased CDF by more than 50%. The model logic is currently being finalized for the FPRA and is expected to result in a similar significant CDF decrease.
   - The LaSalle PRA (both FPIE and FPRA) used in the ILRT risk assessment did not credit manual containment vent actions for the existing vent system due to personnel safety concerns associated with non-hardened ducting that

would fail during venting. LaSalle has now developed procedures and completed training to support manual venting with the non-hardened system. Credit for use of this system would further reduce CDF.

- Dominant fire scenarios for the 2015 FPRA include postulated hot gas layer (HGL) formation in the divisional essential switchgear rooms and the Main Auxiliary Electric Equipment Rooms (AEERs). These fires contribute more than 30% to Fire CDF and more than 40% to Fire LERF in the 2015 FPRA. Recent detailed fire modeling (which is being finalized) using the CFAST code, indicates that a hot gas layer will not form in the divisional essential switchgear rooms and will not form as quickly as originally modeled for the Main AEERs. This modeling refinement will significantly reduce the Fire CDF and Fire LERF results.
- The LaSalle PRA (both FPIE and FPRA) used in the ILRT risk assessment included a room cooling dependency for the DGCW and RHRSW pumps located in the CSCS rooms. Recent room cooling calculations (which are being finalized) preliminarily indicate that room cooling is not required for the CSCS rooms for the PRA mission time. Eliminating this room cooling dependency in the 2015 FPRA model eliminates approximately 4% of Fire CDF and 0.1% of Fire LERF.
- The LaSalle PRA (both FPIE and FPRA) used in the ILRT risk assessment did not credit a trailer mounted air compressor that was on-site part-time and could be used to support the instrument air system. A trailer mounted air compressor is now at the site permanently and is self-cooled (eliminating an ultimate heat sink dependency). It can be connected to support the plant instrument air system if needed and off-site power is available.
- The LaSalle PRA (both FPIE and FPRA) used in the ILRT risk assessment did not credit FLEX equipment, B.5.b equipment, or operator actions to Blackstart RCIC. Equipment, procedures, and training are complete to support use of these mitigation strategies. These would further reduce Fire CDF and LERF as compared to the values used in the ILRT risk assessment.

Based on the above discussion, including consideration of the details associated with individual F&Os identified in Table 5-1, the Fire CDF and LERF values used in the ILRT risk assessment are conservative and bounding.

b) The Fire CDF and LERF used in the LaSalle ILRT risk assessment are those from the 2015 FPRA which received a full and complete Peer Review in 2015. With regard to the use of unapproved/unreviewed analysis methods, the Fire Peer Review Report notes the following:

> "the LaSalle Peer review included all of the SRs and all applicable reference SRs.... There were no "Unreviewed Analysis Methods" identified during the review."

Any errors or failure to meet the PRA Standard SRs were addressed by the Peer Review team via the development of Findings and Observations (F&Os).

TABLE 5-1

2015 FIRE PRA PEER REVIEW F&O SIGNIFICANCE REVIEW

F&O	FINDING DESCRIPTION(S)	SIGNIFICANCE
1-1	The equipment selection does not address item (a) of supporting requirement ES-C2, which is to identify spurious operation of any single instrument that can impact the actions / HFEs addressed by the FPRA (i.e., the actions modeled by the FPRA). For part (b) of SR ES-C2, the equipment selection examined the potential for undesired operator actions arising from a single spurious indication solely as part of the operator interview. No systematic evaluation, such as by a procedure-by-procedure review was documented. The intent of this SR is to identify any single instruments that 'could' cause undesired actions. From the perspective of the peer review, the outcome of the interview process provided insubstantial basis for the conclusion that no undesired actions could arise from the spurious operation of any single instrument.	For the 2015 FPRA, SR ES-C2, item a, was originally addressed by identifying instrumentation credited for each cue associated with operator actions. This list of cues and associated instruments were discussed in detail with the operators to ensure that any single failure (spurious or otherwise) would not impact the operator's ability to diagnosis the need to take the operator action. The part of the SR, item a, that was not complete and documented was the review of the execution portion of the operator actions to ensure that any spurious operation of an instrument would not fail the action during the execution phase. Following the Peer Review, a review of the operator actions by an HRA Analyst was performed and no such spurious operations were identified. The final step to resolve this part of the F&O will be to confirm this conclusion through another set of operator interviews and document this conclusion appropriately in the FPRA documentation. With respect to part (b), the 2015 FPRA work addressed this by conducting interviews in the simulator and walking down alarm panels and instruments in a methodical manner and asking the operators to identify potential spurious indications, including annunciators, which could cause the operators to execute an undesired action. The operators did not identify any such indications. Operators noted that communications and conduct of operations protocols require a disciplined approach to response to alarms and although the operators are directed to believe their indications, Attachment 2 of OP-AA-101-113, OPERATOR FUNDAMENTALS, directs them to validate parameters through multiple independent means and to validate parameter status prior to initiating action. The operators indicated that it was extremely unlikely that any single instrument failure would cause an error of commission (EOC). During interviews Operators were also challenged to identify an alarm response procedure (ARP) where separate confirmation of the alarm would not be available or required. The operators could not identify any such circumstances. As part of the Peer Review, the Peer Review team reviewed several alarm response procedures (i.e., DG high oil temperature, RCIC turbine bearing high temperature) and found that "both of these procedures are written in a manner to avoid undesired actions." The Peer Revie team identified no examples found in ARPs where a single spurious indication would lead an EOC. An exhaustive review of ARPs has not yet been performed and documented, but based on the evidence cited by the Peer Review team (i.e., two risk significant ARPs were written in a manner to avoid EOCs), and operator interviews conducted during the development of the FPRA, no risk significant potential EOCs are expected to be identified. As a result, the 2015 FPRA results are judged to be reasonable with respect to this F&O to support the ILRT application.

TABLE 5-1

2015 FIRE PRA PEER REVIEW F&O SIGNIFICANCE REVIEW

F&O	FINDING DESCRIPTION(S)	SIGNIFICANCE
1-9	Examples were provided where ES-A2 requirements were not met: For the loss of feedwater, supporting equipment for the feedwater pumps, condensate pumps, condensate booster pumps is placed on the FPRA equipment list. However, for instrumentation, one pressure sensor was identified for the loss of feedwater initiator, but no other instrumentation was identified, such level 8 sensors (which may be part of the feedwater pump logic, reactor low level sensors (which could impact the MSIVs and lead to MSIV closure), drywell pressure sensors (which could lead to a spurious LOCA signal and loss of feedwater), switchgear undervoltage sensors (which could isolate the offsite power supplies). For interlocks related to initiating events, one interlock was identified for the spurious ADS: ADS DIV I RELAY LOGIC SPURIOUSLY OPERATES, ADS DIV II RELAY LOGIC SPURIOUSLY OPERATES. No other interlocks were identified, such as MSIV closure signal, LOCA signal (spurious), or spurious feedwater pump turbine trip. For support system dependencies, the peer review noted that power supplies and air / nitrogen dependencies are not listed for some components. For example: MSIV power / air / nitrogen dependencies for the TM initiator; for the TC initiator, the valves and their support dependencies are not listed for the turbine gland sealing system. The documentation does not provide evidence that a review for power supply, interlock circuits, instrumentation and support system dependencies was performed to identify additional equipment whose fire-induced failure, including spurious actuation, could adversely affect any of the equipment identified per SR ES-A1.	SR ES-A2 requires that power supplies, interlock circuits, instrumentation, and support system dependencies be reviewed to identify additional equipment whose fire-induced failure could adversely impact the equipment identified in ES-A1. Note that ES-A1 identifies equipment that could cause an initiating event. The LaSalle full power internal events (FPIE) PRA model was used as the framework for building the FPRA. The FPIE model includes power support systems and power supply dependencies for risk significant equipment. Therefore, there is high confidence that all significant power supplies and support systems are included in the PRA modeling. Additionally, some instrumentation and interlocks are also modeled where it is risk significant in the FPIE model. The Peer Review team noted in this F&O that a documented, detailed review of each system as it pertains to Fire Initiating Events was not provided. It judged that any additional detailed reviews will likely not identify any new initiating events or equipment whose failure will cause an initiating event that is not already addressed by an existing fire scenario. With respect to the modeling of instrumentation and interlocks, there is high confidence that these components are bound by the current fire modeling. During model development, detailed plant walkdowns were conducted. Fire scenarios were developed for all areas within the global analysis boundary that were not screened out qualitatively (e.g., inerted containment, service building). The fire scenarios for these areas sought to include all the applicable fire ignition frequencies. Generally all fires were conservatively assumed to cause an initiating event, even if the component ignition source was not included in the PRA (e.g., hoist) and there were no PRA related targets within the fire zone of influence. The FPRA incorporates model logic in the form of a Fire Initiating Event Decision Tree to determine the most appropriate initiating event for the fire failed cables and equipment. The FPRA treats all included fires with at least a turbine trip initiator. Therefore, fire ignition sources and transient fires are judged to be modeled conservatively with regards to causing an initiating event. Most risk significant equipment in the FPRA has circuit analysis and cable selection performed as documented in the fire safe shutdown analysis (SSA). The SSA analyzed and selected cables as required for power supplies, instrumentation, interlocks and support system dependencies. Other less risk significant systems (e.g., FW, Condensate) are treated in the FPRA using conservative "assumed routing" due to the lack of component specific circuit analysis. With the assumed routing, plant systems are failed for fires in zones where cables associated with those plant systems are known to exist based on system level cable database queries, even though not all fires in those zones might impact the associated

TABLE 5-1

2015 FIRE PRA PEER REVIEW F&O SIGNIFICANCE REVIEW

F&O	FINDING DESCRIPTION(S)	SIGNIFICANCE
1-9 (cont'd)		cables. This conservative modeling approach generally bounds specific power supplies, instrumentation, interlocks and support system dependencies. It is noted that the Peer Review team wrote F&O 6-12 that specifically critiques the conservatisms associated with the extent of assumed routing used. To evaluate the potential conservatism associated with assumed routing assumptions, a sensitivity case was performed with the 2015 FPRA where all assumed routed cables were removed from every fire scenario. The Fire CDF and Fire LERF decreased by approximately 26% (from 9.48E-5/yr to 6.98E-5/yr) and 37% (from 5.82E-6/yr to 3.68E-6/yr), respectively. This sensitivity case shows the potential maximum conservatism associated with assumed routing and demonstrates the potential margin to absorb any "missed" power supplies, instrumentation, interlocks and support system dependencies. For the 2015 Fire PRA development, additional circuit analysis and cable selection was performed for off-site power sources, ADS, and additional plant instrumentation. This work included consideration of power supplies, instrumentation, interlocks and support system dependencies. As noted by the Peer Review team above, ADS interlocks were properly represented. Based on the above discussion, the potential impact for any missed power supply, interlock circuits, instrumentation and support system dependencies is judged to be small, much less than the conservatisms associated with assuming that all fires lead to at least a turbine trip and assumed cable routing.
1-19	The peer review examined the cable selection package for offsite power loss switchyard breaker (OCB 4-6). The circuit evaluation package includes two pages of notes regarding interlock evaluations and the notes and assumptions associated with the interlocks. For example, a note is made that 'the interlock associated with trip and lockout of SAT 242. Cables that can cause relay to actuate are to be included with SAT 242'. The FPRA development team indicated that this impact for SAT 242 is addressed by the FPRA, but that no systematic review of the circuit evaluation package notes was performed.	F&O 1-19 was a "Suggestion" level F&O rather than a "Finding" associated with reviewing and confirming that detailed circuit analysis package notes were appropriately considered. The Peer Review team did not identify any examples where circuit analysis notes were not appropriately addressed. This F&O is therefore identified as a confirmatory check. As such, there is no identified potential impact to the ILRT application.

TABLE 5-1

2015 FIRE PRA PEER REVIEW F&O SIGNIFICANCE REVIEW

F&O	FINDING DESCRIPTION(S)	SIGNIFICANCE
1-20	For the cable selection performed for the MSO circuited analyses, exclusions for the number of hot shorts and DC polarity hot shorts were made in some circumstances. With respect to the FPRA component states whose cable selection relies on the Fire Protection Report, the methodology used for Fire Protection Report is currently unknown. Therefore, some proper polarity hot shorts on ungrounded dc circuits; requiring up to and including two independent faults could result in adverse consequences may not be included.	With regards to exclusions for the number of hot shorts in the MSO circuit analyses, these exclusions were limited to consideration of external (inter-cable) hots shorts of those DC circuits that include shorting switches. Methodologies for the use of shorting switches to address MSO concerns is currently the subject of NEI 00-01 Draft Revision 4 (i.e., Appendix I). In the interim, it is judged that the application of shorting switches provides reasonable protection against spurious operation. In the NRC Safety Evaluation for the Browns Ferry plant transition to NFPA 805 (ML15212A796), the NRC accepted a bounding estimate of 1E-3 for circuit failure probability (CFP) associated with fire induced concurrent failures required to fail a protective shorting switch. When a CFP of 1E-3 is combined with a typical fire scenario frequency value, non-suppression probability, and conditional core damage probability, the risk significance is estimated to be negligible. It is also noted that the 2015 LaSalle FPRA did utilize the guidance of NUREG/CR-7150 for the development of CFPs that did not involve shorting switches. With regards to the Safe Shutdown Analysis (SSA) documented in the Fire Protection Report, there are no references to exclusions taken with regard to the number of hot shorts assessed. Although the circuit analysis techniques originally used for the SSA predates NEI 00-01, the approaches used were acceptable for the plant licensing basis and were representative of those that became the basis for NEI 00-01 Rev. 0. Subsequently, the LaSalle Fire SSA has been updated and augmented in accordance with updates to NEI 00-01, through Rev. 3. As a result, the cables selected and incorporated into the Fire PRA from the SSA presents a solid basis for the Fire PRA. Therefore, this F&O is judged to have no impact on the conclusions of the ILRT application.
1-23	The top 100 combinations were selected for inclusion in the Dependency Analysis, based on the DI measurement in the HRA Calculator. All other dependent combinations were screened away. DI is a risk achievement worth measurement: HEPs in each combination are set to 1 to measure the increase in risk for that combination. Peer review team noted Risk reduction worth is the relevant importance measure when selecting HFE combinations to be addressed for dependency.	Following the FPRA Peer Review, the HRA dependency analysis for CDF was reperformed and all combinations were retained. The Fire CDF increased from 9.48E-5/yr to 9.69E-5/yr, an approximately 2% increase. This increase is small compared to other conservatisms in the Fire PRA model and does not change the conclusions of the ILRT risk assessment. It is also noted that the Fire CDF in the in-process model has decreased from the Peer Review version.

TABLE 5-1

2015 FIRE PRA PEER REVIEW F&O SIGNIFICANCE REVIEW

F&O	FINDING DESCRIPTION(S)	SIGNIFICANCE
2-8	As described in the Exposed Structural Steel Analysis Notebook the process employed does not consider the possibility of high-hazard fire sources, other than significant quantities of combustible fluids, such as flammable gases i.e., hydrogen. Also this process does not consider the introduction of a transient ignition source such as welding or a battery test load.	Post-peer review, additional consideration of potential high-hazard fire sources was performed, including reviewing treatment for turbine generator hydrogen related fires, offgas hydrogen recombiners, portable gas cylinders, and batteries. None of these potential sources were found to require the addition of any fire scenarios in the FPRA. With regards to the introduction of transient ignition sources such a welding or sparks induced by a battery test load, review of experiments documented in EPRI NP-1731 and NUREG/CR-4679 found that high firepoint hydrocarbon fluids (e.g., lubricating oil) do not result in a sustained fire once the heat source is removed (e.g., an oxyacetylene torch was applied to the surface of a high firepoint pool and there was not sustained fire once the torch was removed). Low firepoint liquids (e.g., solvents, acetone) are not stored in large quantities. Based on this review, no additional fire scenarios were found to be required to address potential high-hazard fire sources.
3-4	Basis: Two recovery probabilities are developed for instrument air. One is from the internal events PRA and involves restoration of air after total system loss. The other recovery split fraction is for restoration of the in air after brazed fittings are fire failed. The probability of these split fractions is not substantiated for fire PRA.	The primary risk significance of the instrument air system in the FPRA is to support containment venting in the long term. Although the loss of instrument air will impact balance of plant (BOP) equipment (e.g., FW, Condensate), BOP is conservatively treated in the FPRA due to the lack of detailed circuit analysis. With regards to containment venting, approximately 27 hrs are available for loss of containment heat removal sequences to initiate containment venting before venting is no longer feasible (i.e., valves may not open due to high differential pressure). The FPIE model includes a recovery value (2IARXRCOVERIAH--) for instrument air of 0.1 for non-LOOP or non-DLOOP events. The FPIE Component Data Notebook documents the development of a non-recovery probability based on a WASH-1400 mean time to repair (MTTR) estimate of 7 hours. Using an exponential MMTR model within 27 hours available provides a non-recovery probability of 2E-2. Therefore, the 0.1 value employed in the FPIE model is judged conservative. For the Fire PRA, this HEP was conservatively set to 1.0. For the FPRA a new HEP was developed to reflect the fact that fire induced instrument air pipe leakage (i.e., fire failed fittings) is recoverable by local isolation. As part of the HEP development, P&IDs were reviewed to confirm that isolation locations were available throughout the plant. The documentation, however, did not include the applicable P&IDs or a detailed description of the system design sufficient for the peer review team to confirm that the operator action was achievable and the HEP was reasonable. Following the Peer Review, this HEP was reviewed again and determined to be reasonable. Justification will be added to the FPRA documentation in the future.

TABLE 5-1

2015 FIRE PRA PEER REVIEW F&O SIGNIFICANCE REVIEW

F&O	FINDING DESCRIPTION(S)	SIGNIFICANCE
3-4 (cont'd)		It is also noted that LaSalle has three significant plant improvements related to instrument air system based risk that are not credited in the base 2015 FPRA model used for the ILRT risk assessment. First, the Hardened Containment Vent System (HCVS) has been installed in U2 and will be installed in U1 in the spring outage in 2018. The HCVS provides a more reliable means to vent containment and is independent of the installed IA system. Included in the Peer Review documentation was a sensitivity case crediting the HCVS. For that model, credit of the HCVS decreased CDF by more than 50%. Second, LaSalle has developed procedures and completed training to support manual venting of the non-hardened vent system that is independent of the installed IA system (i.e., portable air bottles are connected directly to the vent valves). Third, LaSalle has a backup trailer mounted air compressor that can provide air to the instrument air system within approximately three hours should the three installed plant compressors fail. Based on these three plant improvements, the 2015 FPRA model is conservative with respect to CDF for instrument air dependencies.
3-6	Instrumentation required for operator cues is identified. If no instrumentation is available, the action is failed. Further, the modeling is such that if all instruments are available, the HEP is developed assuming degraded cues. However, there is no discussion to substantiate that the nominal HEP case is actually the case for degraded cues. Additionally, for the cases for degraded cues, considerable credit appears to be taken for recovery of cognition errors, given a fire with degraded cues. The guidance is to have at least three HEP cases - a) full instruments, b) partial instruments, c) no instruments. The PRM assumes cases a) and b) are the same as case a). Case c) is modeled correctly according to the guidance.	Most HEPs have multiple and redundant cues available to the operators. Many of the cues may include annunciator alarms. For many of these annunciator alarms, circuit analysis does not exist to allow fire induced impacts (e.g., specific fires that fail specific cables associated with particular annunciator alarms) to be assessed at a detailed fire scenario level. Because of the potential for fires to impact some cues, the FPRA conservatively did not include many of these redundant cues in the HRA. To reflect this approach, the HRA developed HEPs for partial instruments (case b) and no instruments (case c), as noted in the F&O. This HRA approach is conservative. The PRM does not assume that case a) and b) are the same as case a). The PRM does not include additional credit for case a), such that the PRM assumes case a) and b) are the same as case b). Each calculation in the HRA Calculator provides the following discussion (or similar wording) in the comments section for cues which states, "While the cue for this action within the FPIE PRA was assessed as "Very Good," the cue for this action within the Fire PRA is assessed as "Average" due to the potential loss of secondary indications and indications not directly related to this action due to fire impacts." The LaSalle Fire HRA Notebook, LS-PRA-021.09. Rev. 0, Table 3-4, provides a full discussion of the approach for assessing operator actions given a fire scenario including penalties taken for degraded cues and the recovery of cognitive errors. Credit is allowed for cognitive errors and is based largely on time available and crew available. Since a cue does exist (i.e., it is only assumed degraded, not failed), the recovery probability primarily depends on having enough time to recognize the cue that was initially missed by either the individual who initially missed the cue or another person on the crew. The approach discussed in the HRA, allows credit for recovery if there are time and personnel available. The amount of recovery is set by the parameters in the HRA Calculator.

TABLE 5-1

2015 FIRE PRA PEER REVIEW F&O SIGNIFICANCE REVIEW

F&O	FINDING DESCRIPTION(S)	SIGNIFICANCE
3-6 (cont'd)		With respect to recovery of cognition errors, the Peer Review report does not detail any specific HFEs as utilizing inappropriate credit. A reasonableness check of the HEPs was performed and they are generally consistent within the context of related actions and the actions modeled in the FPIE. The HEPs in the FPRA are generally higher than those in the FPIE model, due to the fire impacts and degradation of cues. HEPs are a known source of model uncertainty and this was investigated in the 2015 LaSalle FPRA Uncertainty Notebook, LS-PRA-021.12, Revision 0. The following sensitivity results were presented in the notebook: - The Fire HEPs were set to their 95th % percentile value. The Fire CDF and Fire LERF increased approximately 33% and 16%, respectively. - The Fire HEPs were set to zero. The Fire CDF and Fire LERF decreased by approximately 35% and 13%, respectively. It is noted that none of the operator actions included in the FPRA are especially focused upon the ILRT application postulated increase in containment leakage. LaSalle utilizes an inerted containment design. The pre-existing failure utilized in the EPRI ILRT methodology models a pre-existing leak that is 100 times the plant technical specification leakage. A containment leak of this magnitude is expected to be detectable by operators based on makeup required to maintain the inerted atmosphere. No credit is included in the PRA for the potential for operators to detect the increased leakage and repair the condition. This lack of credit for detection and repair is another unquantified conservatism in the risk assessment. In summary, the HRA treatment in the 2015 FPRA is judged to be conservative in that not all cues were modeled, no non-conservatisms have been identified in the application of diagnosis recovery, and the ILRT application is not sensitive to any specific HEP. Therefore, it is concluded that the HRA treatment associated with this F&O has no impact on the conclusions of the ILRT risk assessment.
3-11	MSO 2I concerns spurious closure of the min flow valve on the RHR pump while the RHR pump receives a spurious or valid signal to start. The Task 2 report states that the RHR pump circuit has been modified to not permit spurious starts. Therefore this MSO cannot occur. This may suffice for spurious RHR pumps starts, but does not extend to valid pump starts or based on false instrumentation inputs. This MSO should be re-instated, with appropriate operator actions to curtail the pump operation after it is detected when the minimum flow valve is closed.	MSO 2I was added to the model, along with a screening HEP for operators to restore the RHR min flow valve given a fire induced spurious closure of the valve. The cutsets associated with this MSO were below the truncation limit, which indicates that the impact of adding this MSO scenario to the model is negligible and it has no impact on the conclusions of the ILRT risk assessment.

TABLE 5-1

2015 FIRE PRA PEER REVIEW F&O SIGNIFICANCE REVIEW

F&O	FINDING DESCRIPTION(S)	SIGNIFICANCE
3-13	A fault tree development was added to accommodate failure of instrument air piping due to melting of the solder on the pipes. The top gate is input into an AND gate - SA-TOTAL-LOSS, which includes component based losses of instrument air. The top gate SA-TOTAL-LOSS should be an OR gate to separate the loss of IN-AIR due to component damage and piping failure.	As discussed above for F&O 3-4, the primary risk significance of the instrument air system is to support containment venting in the long term. A sensitivity case was conducted using the 2015 FPRA model where the SA-TOTAL-LOSS gate was corrected from being an AND gate to an OR gate. The CDF increased by approximately 5.5% percent. The IRLT risk assessment did not include credit for the Hardened Containment Vent System (HCVS) which is not dependent upon the plants IA system. Included in the Peer Review documentation was a sensitivity case crediting HCVS. For that model, credit of the HCVS decreased CDF by more than 50%. Therefore, this F&O does not change the conclusions of the ILRT risk assessment.
4-1	The Global Analysis Boundary does not specifically include a PAU for the Yard. Table A-1 of the Plant Partitioning Notebook does not include a PAU defining the remainder of the Yard/exterior that contains FPRA equipment (i.e., duct banks, manholes, other equipment).	Subsequent to the Peer Review, yard areas of the plant were re-evaluated. A new Yard PAU was formally defined to address miscellaneous areas not specifically addressed by other established PAUs located outside (e.g., switchyard, transformers). Individual fire scenarios were added for this new Yard PAU to address the potential for transient fires in the unground manholes. The total CDF associated with these new scenarios was less than 1E-8/yr in a recent in-progress model, which would represent less than a 0.01% CDF increase to the 2015 FPRA model. It is also noted that using the NUREG/CR-6850 methodology, the frequency assigned to these new scenarios was previously assigned to other fire scenarios in the outside portion of the plant. Therefore, this F&O does not change the conclusions of the ILRT risk assessment.
4-17	There is no generic estimate or plant-specific value assigned to the non-suppression probability. The non-suppression values are only based on the NUREG/CR-6850 generic values for unreliability with no account for unavailability.	As part of the FPRA development for the Peer Review model, the fire protection engineer reviewed the non-suppression probabilities used in the FPRA that were based on the NUREG/CR-6850 values. The review was based on his personal experience with the fire suppression systems and review of plant data sources such as plant health reports. The fire protection engineer noted the following: • Wetpipe Sprinklers – For the 90+ systems, rate would be between 0.01 and 0.02. Therefore the 0.02 value used in the FPRA is a reasonable estimate. • Deluge Sprinklers – Experience at LaSalle would be approximately the same as wetpipe sprinklers (i.e., 0.02). Therefore the 0.05 value used in the FPRA is conservative. • CO2 system – Experience at LaSalle has shown better system success than wetpipe sprinklers and a 0.02 value is estimated to be reasonable for LaSalle. The value used in the FPRA was 0.04 and conservative. The fire protection engineer indicated that he considered that the values used in the FPRA adequately covered both unreliability and unavailability for the suppression systems. It is

TABLE 5-1

2015 FIRE PRA PEER REVIEW F&O SIGNIFICANCE REVIEW

F&O	FINDING DESCRIPTION(S)	SIGNIFICANCE
4-17 (cont'd)		also noted that for suppression system unavailability compensatory actions are taken to mitigate the potential increase in fire risk. To determine the effect of the assumed auto-suppression failure/unavailability rates on the non-suppression probabilities and fire risk, a sensitivity case was performed using the 2015 FPRA model with the auto-suppression rates doubled. It is noted that automatic suppression is only credited for specific rooms where it is installed in order to limit the potential for hot gas layer and subsequent impacts on adjacent compartments (i.e., multi-compartment analysis (MCA)). The sensitivity case results indicate that impacts are dominated by the CO2 systems in the EDG rooms for MCA scenarios. Other rooms with auto-suppression systems had negligible contribution to the total CDF. The EDG MCA scenarios contributed approximately 5% to total CDF in the 2015 FPRA, and would double given a doubling of the CO2 failure/unavailability rate. The EDG MCA scenarios in the 2015 FPRA, however, had conservatisms that were subsequently removed following the Peer Review, reducing their contribution by approximately two orders of magnitude such that their contribution to total CDF in an in-process model is less than 0.5% currently. Thus, a doubling of the CO2 failure / unavailability rate in the present model would reflect a lower CDF contribution than that used for the ILRT risk assessment. Overall, it is judged that the non-suppression values used in the FPRA adequately address both unreliability and unavailability, and this F&O does not impact the conclusions of the ILRT risk assessment.
4-18	The Fire Modeling Treatments Notebook and the Fire Modeling Workbook do not assess the time to detector activation for fire scenarios; instead a 1 minute assumed automatic detection time is used in the fire scenario development. Automatic detection is credited in scenarios involving lower HRRs without assessment of the detection actuation timing and effectiveness for the specific scenario and fire size.	This F&O identifies that fire scenarios involving lower HRRs may require longer detector activation times than the 1 minute assumed and applied for all HRRs. While this may occur for some lower HRR fire sources, such sources also have lower heat flux and plume temperature. As a result, additional time (or decreased source to target distance) would be required to achieve target damage thresholds. Therefore, the impacts of these lower HRR fires are often less significant. Review of the 2015 FPRA fire scenarios by type indicates the following: • Approximately 30% of the Fire CDF is due to HEAF events. For these scenarios, ignition of nearby secondary combustibles is assumed to occur immediately. For such scenarios detection is anticipated to occur very rapidly (<10 secs) such that use of a one minute detection time is conservative. • Approximately 25% of the Fire CDF (non-HEAF) is from fire scenarios involving the development of a hot gas layer (HGL). These HGL scenarios are driven by higher HRR fires (i.e., fires capable of significantly increasing the room gas temperature). In these cases, detection within 1 minute is judged to be a reasonable assumption.

TABLE 5-1

2015 FIRE PRA PEER REVIEW F&O SIGNIFICANCE REVIEW

F&O	FINDING DESCRIPTION(S)	SIGNIFICANCE
4-18 (cont'd)		• Approximately 16% of the Fire CDF is from fire scenarios where the fire only fails the ignition source (i.e., no other target damage). This portion of the CDF would be negligibly impacted by detection time as damage to the ignition source is assumed to occur at the onset of the fire. • Approximately 9% of the Fire CDF is from non-HGL fire scenarios that are conservatively postulated to damage components beyond the initial target set (i.e., damage all cables and components within the PAU). Again, these scenarios are typically driven by higher HRR fires where detection within 1 minute is judged to be a reasonable assumption. • Approximately 2% of the Fire CDF is from fires within the Main Control Room (MCR). Because the MCR is continually staffed, detection is expected to occur by personnel rather than fire detectors. Based on the above review of Fire CDF contributors, approximately 82% of the Fire CDF is estimated to be not impacted or negligibly impacted by increasing the detection time in consideration of lower HRR fires. For those cases where lower HRRs may lead to detector activation times in excess of the assumed 1 minute, such sources require additional time to achieve target damage thresholds. Thus, the potential impact to the ILRT application is qualitatively estimated to be small. The 2015 FPRA results have considerable conservatisms as previously identified that would more than compensate for any increases associated with potentially longer detection time for lower HRR fires. Therefore, this F&O is judged to have no impact on the conclusions of the ILRT risk assessment.
6-9	Cable selection relied heavily on the Fire Protection report. The credited operational modes in the FPR and the FPIE were not reviewed to ensure all the failure modes in the FPIE, and therefore, FPRA were adequately cable selected using the FPR as the main source of cable selection information.	The comparison of failure modes between those used in the safe shutdown analysis (SSA) documented in the Fire Protection Report and those used in the FPRA has not yet been completed. While differences between failure modes may be identified when the comparison is completed, any negative impact of such differences on CDF and LERF is expected to be small due to the following reasons: • The failure modes identified in the SSA represent the designed safety function for those components, and these modes are expected to be the most risk significant. • The SSA does not present cables for equipment by failure mode. Therefore, when the SSA cables are applied in the FPRA, all SSA listed cables are applied to all component basic events which are generally differentiated by failure mode. This would be expected to result in overmapping of cables to the basic events and therefore conservatism in the FPRA results. • For FPRA components not included in the SSA, cables were included based on conservative assumed routing. • For components where cables from the SSA reflect a limited set of failure modes (e.g., only fails to remain closed) as compared to the more extensive FPRA modes

TABLE 5-1

2015 FIRE PRA PEER REVIEW F&O SIGNIFICANCE REVIEW

F&O	FINDING DESCRIPTION(S)	SIGNIFICANCE
6-9 (cont'd)		(e.g., fails to open, fails to close, fails to remain closed), the cables associated with the additional FPRA failure modes may often travel along similar routes, and therefore be impacted in similar ways by fire scenarios. Therefore the omission of specific cables for a given component may not have any impact upon the fire scenario results. • For components where cables from the SSA reflect a limited set of failure modes (e.g., only fails to remain closed), it is not known with certainty that the SSA did not include a broader set of component cables. Based on the above, it is estimated that any differences between cable selection based on the SSA as applied to the FPRA would have a negligible impact upon the ILRT risk assessment.
6-11	The cable selection work performed related to the cable data in the Fire Safe Shutdown report pre-dates NEI-00-01 guidance and was done to the standards at that time. No other information is currently available regarding the circuit analysis techniques used for the Fire Safe Shutdown Report. In general, the MSO circuit analysis work was performed using NEI-00-01, Revision 2 or Revision 3 (depending upon the particular package). Possible Resolution: Revise cable selection to be consistent with NEI 00-01 Rev. 3.	Although the circuit analysis techniques originally used for the Fire Safe Shutdown Analysis (SSA) predates NEI 00-01, the approaches used were acceptable for the plant licensing basis and were representative of those that became the basis for NEI 00-01 Rev. 0. Through the years the circuit analysis and cable selection that supports the SSA has received numerous NRC inspections as well as internal reviews. These inspections and reviews substantiate the technical integrity of the SSA cable selection thereby supporting its use for applicable equipment modeled in the FPRA. With regards to NEI 00-01 Rev. 2 vs. Rev. 3, LaSalle performed a gap assessment to examine the impact of changes associated with Rev. 3 (tracked via IR 01277652). Action items identified included review of the new MSO scenarios for applicability to LaSalle and performance of corrective actions as needed, and to determine if any revisions to NEI 00-01 circuit failure criteria or MSO list guidance affected any MSO evaluations and to resolve any such impacts. As documented in Calculation L-003779 Revision 0 (November 2012), the plant completed their MSO scenario analysis, providing MSO resolutions in accordance with SECY-08-0093, RG 1.189 Revision 2, and NEI 00-01 Rev. 3. These actions were completed prior to the 2015 FPRA update. Any supplementary circuit analysis performed strictly to support the 2015 FPRA was performed consistent with NEI 00-01 Rev. 3. Based on the above, the cables selected and incorporated into the Fire PRA from the SSA and the MSO evaluations present a technically appropriate basis for cable selection for the Fire PRA. Therefore, this F&O is judged to have no impact on the conclusions of the ILRT risk assessment.

TABLE 5-1

2015 FIRE PRA PEER REVIEW F&O SIGNIFICANCE REVIEW

F&O	FINDING DESCRIPTION(S)	SIGNIFICANCE
6-12	The LSCS FPRA used assumed cable routing on a large number of FPRA BEs. Some of this assumed routing included risk significant systems such as DG0, RCIC, as well as spurious operations such as FW overfill which impact risk significant systems such as RCIC. This over mapping of failures for risk significant systems may artificially skew the risk significance of some modeled systems and overall FPRA risk distribution. Assumed cable routing of this extent introduces uncertainty into the FPRA results and also conservatism, as well as the potential for non-conservatism.	In the 2015 Fire PRA model, assumed cable routing was used to address the lack of detailed circuit knowledge for a number of components. Some of these components were associated with risk significant systems such as RCIC and DG0. The components supporting RCIC and DG0 are presently being resolved. It is important to note that the equipment tag names associated with assumed routing do not necessarily indicate the entire system. For example, the "RCIC" tag refers only to several RCIC-related CST level transmitters, not the entire RCIC system itself. The CST is credited in the PRA, but not in the Fire Safe Shutdown Analysis, and detailed circuit analyses for these components are being finalized. Use of assumed routing introduces potential conservatism given that for specified areas in the plant, cables are assumed to exist and are conservatively included in postulated fire scenarios for those plant areas, even though an actual fire may not impact the subject cables if they are not within the fire zone of influence. To examine the potential impact of assumed routing assumptions, a sensitivity case was performed and included in the Peer Review documentation. In the sensitivity case, all assumed routing components were eliminated from the fire scenarios (the most optimistic and bounding potential), resulting in a fire CDF decrease of approximately 26%. Detailed circuit analysis for all of these assumed routing components would decrease the overall CDF by less than this amount. Since the Peer Review, additional detailed circuit analysis is in progress to address other risk significant functions such as RHR LPCI and LPCS, both of which are not credited in the Fire Safe Shutdown Analysis. Based on the above discussion, the inclusion of assumed routing leads to a conservative impact on fire risk results. Therefore, this F&O is judged to have no impact on the conclusions of the ILRT risk assessment.
6-14	The CS for the LaSalle FPRA is limited to some extent to the component level even for risk significant components. With this level of resolution, multiple failures modes of a particular component may appear in a fire scenario. This may artificially increase the risk of certain components by adding conservative cutsets.	This F&O highlights a potential conservatism in the model in that in some cases cables associated with only one failure mode may be modeled as causing other failure modes. This is due to the lack of circuit analysis data at the function level in some cases. This approach leads to a conservative impact on fire risk results, as noted in the F&O text. Therefore, this F&O is judged to have no impact on the conclusions of the ILRT risk assessment.

PRA RAI 06

Section 5.7.1.3 of Attachment 3 of the LAR states that external hazards other than fire and seismic (e.g., high winds and tornadoes, external floods, transportation accidents, and nearby facility accidents) were not considered because of their negligible contribution to overall plant risk. This conclusion was reached based on the LSCS Individual Plant Examination for External Events (IPEEE) analysis performed in 1994 and has not been since, updated.

Consistent with the RG 1.174 guidance that that the PRA scope, level of detail and technical acceptability be based on the as-built and as-operated and maintained plant, and reflect operating experience at the plant, please provide justification for the applicability of the IPEEE conclusions to the current plant and its environs, considering each of the external hazards screened from this application and taking into account any updated risk studies and insights.

Response to RAI 06

High Winds

The major concern in a high-wind or tornado scenario are the wind loads imposed on the buildings/major structures and the potential for wind-generated missiles to disable systems or components necessary to shut down the plant of maintain the plant in a safe shutdown condition. There have been no major changes to the buildings/major structures or location of important to safety equipment within them since the IPEEE submittal in 1994. The only significant change is the addition of FLEX equipment and procedures which provide the station with additional response capability to an event.

External Flood

On March 12, 2012, the NRC issued a request for information associated with Near-Term Task Force (NTTF) Recommendation 2.1 for Flooding (Reference 1). One of the Required Responses in Reference 1 directed licensees to submit a Flood Hazard Reevaluation Report (FHRR). For LaSalle County Station, Units 1 and 2 the FHRR was submitted on March 12, 2014 (Reference 2). Additional information was provided with References 3, 4, and 5. Per Reference 6, the NRC considers the reevaluated flood hazard to be "beyond the current design/licensing basis of operating plants".

Following the Commission's directive to NRC Staff (Reference 7), the NRC issued a letter to industry (Reference 8) indicating that new guidance is being prepared to replace instructions (Reference 7), and provide for a "graded approach to flooding reevaluations" and "more focused evaluations of local intense precipitation and available physical margin in lieu of proceeding to an integrated assessment".

The Nuclear Energy Institute (NEI) prepared NEI 16-05, "External Flooding Assessment Guidelines" (Reference 9). The NRC endorsed NEI 16-05 (Reference 10) and recommended changes, which have been incorporated into NEI 16-05, Revision 1. NEI 16-05 indicates that each flood-causing mechanism not bounded by the Design Basis (DB) flood (using only stillwater and/or wind-wave runup level) should follow one of the following five assessment paths:

- Path 1: Demonstrate Flood Mechanism is Bounded Through Improved Realism
- Path 2: Demonstrate Effective Flood Protection

- Path 3: Demonstrate a Feasible Response to Local Intense Precipitation (LIP)
- Path 4: Demonstrate Effective Mitigation
- Path 5: Scenario Based Approach

Non-bounded flood-causing mechanisms in Paths 1, 2, or 3 would only require a Focused Evaluation to complete the actions related to external flooding required by the March 12, 2012 10 CFR 50.54(f) letter. As noted in the NRC Staff Assessment Response (Ref. 12), there are two flood causing mechanisms not bounded by the design basis hazard flood level. These are:

- Local Intense Precipitation
- Probable Maximum Storm Surge (PMSS) flooding in the Cooling Lake

The site relies on permanent passive flooding protection features (site topography, man-made fill areas, and the elevation of the key SSCs) and existing doors that limit the inleakage during the LIP event. There are no active flooding protection features or required site response. The plant buildings affected by flooding loads were evaluated and found to be structurally adequate.

The reevaluated flood hazard, summarized by the NRC in References 11 and 12, was utilized as input to a Flooding Focused Evaluation (Reference 13). The Flooding Focused Evaluation reaffirms that LaSalle County Station's SSCs that support Key Safety Functions are effectively protected from the non-bounded reevaluated flood-causing mechanisms (LIP and Storm Surge in the Cooling Lake) with adequate margin. The LaSalle County Station site does not require human actions to protect Key SSCs so an evaluation of the overall site response is not necessary.

The Flooding Focused Evaluation followed Path 2 of NEI 16-05, Revision 1 (Reference 9), and utilized Appendix B for guidance on evaluating the site protection features. This submittal completed the actions related to external flooding required by the March 12, 2012 10 CFR 50.54(f) letter.

<u>RAI 06 External Flood References</u>

[1] NRC Letter, Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident; dated March 12, 2012

[2] Exelon Generation Company, LLC Letter to USNRC, Response to March 12, 2012 Request for Information Enclosure 2, Recommendation 2.1, Flooding, Required Response 2, Flooding Hazard Reevaluation Report, dated March 12, 2014 (RS-14-055)

[3] Exelon Generation Company, LLC Letter to USNRC, Response to Request for Additional Information Regarding Fukushima Lessons Learned — Flood Hazard Reevaluation Report, dated July 14, 2014 (RS-14-194)

[4] Exelon Generation Company, LLC Letter to USNRC, Response to Request for Additional Information Regarding Fukushima Lessons Learned — Flood Hazard Reevaluation Report, dated May 5, 2015 (RS-15-110)

[5] Exelon Generation Company, LLC Letter to USNRC, Response to Request for Additional Information Regarding Fukushima Lessons Learned — Flood Hazard Reevaluation Report, dated October 4, 2016 (RS-16-186)

[6] NRC Letter, Supplemental Information Related to Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Flooding Hazard Reevaluations for Recommendation 2.1 of the Near Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, dated March 1, 2013

[7] NRC Staff Requirements Memoranda to COMSECY-14-0037, "Integration of Mitigating Strategies for Beyond-Design-Basis External Events and the Reevaluation of Flooding Hazards", dated March 30, 2015

[8] NRC Letter, Coordination of Requests for Information Regarding Flooding Hazard Reevaluations and Mitigating Strategies for Beyond-Design-Basis External Events, dated September 1, 2015

[9] Nuclear Energy Institute (NEI) Report, NEI 16-05, Revision 1, External Flooding Assessment Guidelines, dated June 2016

[10] U.S. Nuclear Regulatory Commission, JLD-ISG-2016-01, Revision 0, Guidance for Activities Related to Near-Term Task Force Recommendation 2.1, Flood Hazard Reevaluation; Focused Evaluation and Integrated Assessment, dated July 11, 2016

[11] NRC Letter, LaSalle County Station, Units 1 and 2 — Interim Staff Response to Reevaluated Flood Hazards Submitted in Response to 10 CFR 50.54(f) Information Request — Flood-Causing Mechanism Reevaluation (TAC Nos. MF3655 and MF 3656), dated September 3, 2015

[12] NRC Letter, LaSalle County Station, Units 1 and 2 — Staff Assessment of Response to 10 CFR 50.54(f) Information Request — Flood-Causing Mechanism Reevaluation (CAC Nos. MF3655 and MF 3656), dated January 10, 2017.

[13] Exelon Generation Company, LLC Letter to USNRC, Response to March 12, 2012, Request for Information Enclosure 2, Recommendation 2.1, Flooding, Required Response 3, Flooding Focused Evaluation Summary Submittal, dated March 8, 2017 (RS-17-025

<u>Transportation and Nearby Facility Accidents</u>

The potential impacts of off-site toxic chemical hazards near LaSalle County Station were evaluated as part of Analysis L-003414, Rev 1A in 2010. The hazards analyzed came from four sources: a large anhydrous ammonia tank and the shipments that are made to the tank and from the tank to local farmers, chemicals transported by truck on highways near the plant, chemicals transported by train on railways near the plant, and chemicals transported by barge on the waterways near the plant.

The concern addressed the safety of the operators from toxic vapor or asphyxiation from off-site chemicals in the area. This calculation concludes for the all chemical hazards that the requirements of Reg. Guide 1.78, Rev. 0 and Reg. Guide 1.95, Rev. 0 are met in the event that a hazardous condition exists within five miles of the station. The acceptance criteria were established based on IDLH limits of concentrations of hazardous vapors, time to respond to a detected release, and relative frequency of potentially significant release.

As specified in the UFSAR Section 6.4, surveys are conducted every 3 years to re-evaluate the use of chlorine, within 5 miles of the control room, to ensure that a chlorine hazard does not exist. Every 6 years a survey is conducted to re-evaluate the use of toxic chemicals, within 5 miles of the control room, to ensure that a toxic chemical hazard does not exist.

In order to overcome the effects of an accidental release of anhydrous ammonia on the Illinois River, redundant ammonia detectors have been added on each outside air intake of the control room system. These detectors will sense ammonia concentrations at the outside air intakes from near zero ppm and higher. On detection of ammonia in the outside air, a control room annunciator alarms. Within 2 minutes of detection of high ammonia concentration in the air intake, the Operator will align the CRE HVAC systems in recirculation mode and will don a self-contained breathing apparatus.

Summary Conclusion

Based on the above, external hazards other than fire and seismic (e.g., high winds and tornadoes, external floods, transportation accidents, and nearby facility accidents) are considered negligible contributors to overall plant risk, consistent with the conclusion of the IPEEE.

PRA RAI 07

Section 4.2 of Attachment 3 of the LAR indicates that given the absence of "substantive differences" between the Unit 1 and Unit 2 internal events PRA models, only the Unit 2 internal events PRA model was used to support the application. In Section 5.7.1.1 of Attachment 3, the licensee similarly notes that the application only makes use of the Unit 2 FPRA; though, no supporting justification appears to be provided for its use.

Please provide a brief description of the differences between the units, particularly those differences that might impact fire and internal flooding risk, and assess the impact of any risk-significant differences on the application.

Response to RAI 07

A brief description of the differences between Unit 1 and 2 is provided.

Unit Differences that Impact Internal Events and Internal Flood Risk

There are no significant differences relevant to the FPIE model between Unit 1 and Unit 2 at LaSalle. The Unit 1 model contains some power supply differences with respect to shared equipment; specifically, the swing SA compressor, SW pump and DGCW equipment. When the Unit 1 model is quantified with these differences, the CDF results are about 0.35% higher for Unit 2 and LERF results are about 0.5% higher for Unit 2. Thus the Unit 2 results used in the ILRT risk assessment bound those of Unit 1 (although the differences are considered negligible).

Units 1 & 2 share EDG 0, which is the swing diesel for supplying either unit with Division 1 power. Given a dual unit loss of offsite power, there is not a preferred unit alignment for EDG 0. EDG 0 aligns to the first unit that indicates under voltage on the Div. I bus. As such, EDG 0 loading to either unit is a "relay race." A 50% probability is assumed for the probability that EDG 0 aligns to either unit.

Unit Differences that Impact Fire Risk

LaSalle Unit 1 and Unit 2 are generally arranged the same, which includes equipment and cable routing. The following identifies some room arrangement items of note:

- The shared Division 1 EDG is located on the south side of the power block adjacent to the other Unit 1 EDGs. As a result, the cables and bus duct associated with the Div 1 EDG support of Unit 2 loads traverse through some Unit 1 plant areas.
- The Main Control Room is shared for both units.
- The Balance-of-Plant Cable Area is sub-divided into Unit 1 and Unit 2 rooms. The Unit 1 room has more PRA equipment (more ignition sources) than the Unit 2 room, but there is a minimal amount of safety related equipment and cables present.
- The Unit 1 Main Auxiliary Electric Equipment Room (AEER) has cables present for both divisions of RHR, while the Unit 2 AEER only has cables associated with one RHR division. To address this design difference, separate controls and instrumentation are provided for Unit 1 RHR B components to make them independent for a fire in the Unit 1 AEER to support suppression pool cooling.

With regards to quantified risk, although the 2015 FPRA considered fires in both Unit 1 and Unit 2 areas, the quantification focus was on Unit 2. Unit 1 risk results were not finalized for the Peer Review. It is noted that a previous interim FPRA (2009) did develop a CDF result for both Units 1 and 2. The Unit 1 CDF was approximately 6% less than the Unit 2 CDF for that model. In general, these differences were attributed to different levels of fire modeling refinements rather than physical unit differences (i.e., Unit 2 fire scenarios were less refined than Unit 1 fire scenarios for select rooms).

It is also noted that at the present time, Unit 2 has the completed installation and training for the Hardened Containment Vent System (HCVS). This will not be completed for Unit 1 until the spring 2018 outage. As noted in other RAI responses, the HCVS was not credited in the FPRA results used in the ILRT risk assessment.

Based on the above, the Unit 2 FPRA results used in the ILRT risk assessment are judged to adequately represent the fire risk associated with Unit 1.

PRA RAI 08

The LAR does not request an extension of the Drywell to Wetwell Bypass Leak Rate Test (DWBT) interval extension. The licensee stated that the current DWBT surveillance interval "is controlled under the LSCS Surveillance Frequency Control Program (SFCP) and is expected to be revised under the SFCP to once every 15 years should the LSCS ILRT LAR be approved." A risk analysis quantifying the risk impact of the DWBT interval extension was provided in Appendix B to Attachment 3 to the LAR.

Since the DWBT interval extension is not requested in LAR, Please provide explanation and clarification for the purpose of this DWBT risk analysis, including the risk impact of the DWBT interval on the ILRT interval extension requested in the LAR.

Response to RAI 08

The LaSalle ILRT risk assessment provided DWBT with ILRT risk results in the conclusion section of Appendix B of the LAR. The following statement in the conclusion may have led to some confusion: "A DWBT risk analysis documented in Appendix B provides key metric values that, in combination with ILRT results, would not change the ILRT related conclusions described above." There is no requirement to add DWBT extension risk impact to the ILRT extension risk impact, therefore, this statement was not necessary.

Prior to the DWBT Surveillance requirements being moved to the SFCP, LaSalle and plants with similar containments were required to submit a DWBT LAR. Since the tests are typically performed in the same outages, it has been customary to submit both the DWBT and ILRT LAR requests together. With movement of the DWBT to the SFCP, this is no longer necessary. Inclusion of the DWBT was unnecessary and an NRC review of Appendix B is not being requested.

The ILRT and DWBT tests are done on different components and boundaries. DWBT would not identify a containment leak. Likewise, an ILRT would not find a DWB leak. Therefore, the tests are independent. Therefore, there is no risk impact of the DWBT interval on the ILRT interval extension requested in the LAR.