June 14, 2013

L-2013-193
10 CFR 50.90

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555-0001

Re: St. Lucie Units 1 and 2
Docket Nos. 50-335 and 50-389
Transition to 10 CFR 50.48(c) - NFPA 805 Performance-Based Standard for Fire Protection for Light Water Reactor Generating Plants (2001 Edition) Acceptance Review Clarification Response

References:

1. FPL Letter L-2013-099 dated March 22, 2013, Transition to 10 CFR 50.48(c) - NFPA 805 Performance-Based Standard for Fire Protection for Light Water Reactor Generating Plants (2001 Edition)

2. Email from Siva Lingam, NRC, to Ken Frehafer, FPL, dated June 7, 2013, St. Lucie NFPA-805 LAR Acceptance Review Clarification Questions.

Per Reference 1 above, Florida Power & Light Company (FPL) requested an amendment to the Renewed Facility Operating License (RFOL) for St. Lucie Units 1 and 2 that will enable St. Lucie to adopt a new fire protection licensing basis which complies with the requirements in 10 CFR 50.48(a) and (c) and the guidance in Revision 1 of Regulatory Guide (RG) 1.205.

As part of the LIC-109 acceptance review for Reference 1, the NRC forwarded questions to clarify aspects of the LAR submittal per Reference 2.

The purpose of this letter is to provide responses to the LIC-109 acceptance review questions. The response is contained in the enclosure to this letter.

If you should have any questions regarding this submittal, please contact Eric Katzman, Licensing Manager, at 772-467-7734.

A006
NRL

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 14, 2013.

Respectfully submitted,

Joseph Jensen
Site Vice President
St. Lucie Plant

JJ/KWF

Enclosure: Transition to 10 CFR 50.48(c) - NFPA 805 Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants, 2001 Edition, LIC-109 Acceptance Review Clarification Response

cc: Ms. Cynthia Becker, Florida Department of Health

Enclosure

Florida Power & Light Company
St. Lucie Units 1 and 2

Transition to 10 CFR 50.48(c) - NFPA 805 Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants, 2001 Edition

LIC-109 Acceptance Review Clarification Response

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Clarification Reponses

NRC Request 1:

Findings PP-C3-01, ES-D1-01, CS-A3-01 and HRA-A2-02 are identified in Table V-1 but no corresponding dispositions are provided in Table V-2. Provide an updated Table V-1 which accurately cross-references to the Findings in Table V-2 or explain the reason for these exclusions from Table V-2 and provide a revised Table V-2 that includes these findings.

FPL Response:

PP-C3-01 and PP-B7-01 were duplicate F&Os from the peer review. Added PP-C3-01 to the Table V-2 entry for PP-B7-01.

ES-D1-01 was omitted from Table V-2 due to confusion regarding the level of significance of the F&O. It has now been added to Table V-2.

CS-A3-01has been added to Table V-2. Its omission was related to confusion between CS-A3-01 and CF-A3-01 F&Os which were duplicates in the peer review F&O database.

HRA-A2-02 was an incorrect reference for HRA-A2 supporting requirement. HRA-A2-01 is the only F&O provided in the peer review report for supporting requirement HRA-A2-02. HRA-A2-02 was deleted from Table V-1.

Clarification Reponses

NRC Request 2:

Table V-1 identifies 25 SRs as Not Met and 8 as meeting CC-I only. Examples include but are not limited to Findings ES-C2-01, HRA-A2-01, HRA-B3-01, HRA-B3-02, and HRA-A4-01. Furthermore, the following PRA HRA modeling findings are noted:

(a) Of the 12 HRA-related SRs from Part 4 of ASME/ANS RA-Sa–2009, four SRs were identified as Not Met, and three are only met at CC-I. Additionally, HRA-related findings are also written against other non-HRA SRs, e.g., FQ-C1 and ES-C2.

(b) Finding HRA-A2-01 noted that the fire-related manual actions were not included as basic events in the fire PRA model but rather "were incorporated into the model by altering the failure probability of a related equipment failure basic event" and concluded that "[the] documentation is not sufficient to support FPRA peer review and future use."

(c) The dispositions to SRs HRA-D2-01 and HRA-C1-01 note the use of "bounding" multipliers to account for dependencies between fire-related HFEs and the dispositions to SRs HRA-B3-02 and HRA-A4-01 note the use of "the screening approach for adjusting FPIE model HEPs."

Provide the results of a post-disposition self-assessment of the capability category of each of the 25 SRs identified by the peer review as Not Met or meeting CC-I only. For each SR determined to not be met or to not meet CC-II or better, provide a justification for why this is acceptable for the NFPA 805 application (i.e., technically adequate to support the FREs and post-transition plant change evaluations). In the self-assessment, specifically address why the dispositions to the SRs identified in items (b) and (c) resolve the associated findings and why the HRA is adequate to support the NFPA 805 application. The response to this RAI should be provided in a revised Table V-2 or new Table V-3.

FPL Response:

(a) The current CC and basis for acceptability of CC-I is provided for HRA-A4, HRA-B3, HRA-C1 and HRA-D2 in the responses to questions 2(b) and 2(c) below. Supporting Requirements HRA-A3 and HRA-B4 are considered to be met at CC-II per the F&O disposition provided for F&Os HRA-A2-01 and ES-C2-01. The disposition of other HRA related F&Os associated with HRA and non-HRA Supporting Requirements are dispositioned with their associated F&Os in table V-2 (HRA-B2 – Met per peer review, see applicable F&O HRA-A2-01 disposition; HRA-

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E1 – Met per peer review, see applicable F&O HRA-A2-01 disposition; F&O FQ-A4 – Met per peer review, see applicable F&O HRA-B3-01 disposition).

(b) This Supporting Requirement is considered to be met based on actions taken to resolve this F&O, as outlined in Table V-2.

(c) Note that the peer review does not include an F&O HRA-D2-01, F&O HRA B3-01 is the only F&O listed against Supporting Requirement HRA-D2 in the peer review report. The potential confusion is partially due to a typo in the ASME/ANS standard which includes two HRA-D1 requirements with the second being incorrectly identified as HRA-D1 instead of HRA-D2.

Requirement HRA-D2 is considered to be met based on the disposition of F&O HRA-B3-03. The use of multipliers to address the potential for increased failure probability of the internal events model human failure events provides a bounding/conservative fire HEP. The HRA dependency evaluation was revised to incorporate the increased HEP values.

Supporting Requirement HRA-C1 is considered to be met at Capability Category I per the disposition of F&O HRA-C1-01. Capability Category I is considered sufficient for this application based on the conservatism of the screening HEPs used.

Supporting Requirement HRA-B3 is considered to be met at Capability Category I based on the disposition of F&Os HRA-B-01, B3-02 and B3-03. Capability Category I is considered to be sufficient for this application based on the conservatism of the screening HEPs used.

Supporting Requirement HRA-A4 is considered to be met in conjunction with the completion of the commitment in Table S-2 (Item 11) for update of post-fire shutdown procedures and associated training.

Table V-1 has been revised to document the CC for each of the Not Met or CC-I Supporting requirements.

The results of the post-disposition self-assessment of the capability category of each of the 25 SRs identified by the peer review as Not Met or meeting CC-I only is documented in the revised tables V-1 and V-2 provided in Attachments 1 and 2 to this Enclosure.

Attachment 1

Table V-1 PSL Fire PRA Capability Category and List of F&Os from Peer Review Report

(Items in the Capability Category per Peer Review column in brackets "[...]" are associated with CC-I or Not Met Supporting Requirements – these items are addressed in conjunction with the referenced Finding F&Os)

Table V-1: Capability Categories for Supporting Requirements Covered by the PSL Fire PRA Peer Review

SR	Capability Category per Peer Review	Capability Category Based on Resolution of F&O (Basis for acceptability of CC-I)	Active F&Os
PP-A1	Met		PP-A1-01 (F), PP-C2-01(F)
PP-B1	Met		
PP-B2	CC-II/III		PP-B2-01 (S)
PP-B3	CC-II/III		PP-B2-01 (S)
PP-B4	Met		PP-C3-01 (F)
PP-B5	[CC-I]	CC-I (CC-II only applicable if active fire protection features are credited. No active fire protection features are credited for PSL)	PP-B5-01 (S), PP-C3-01 (F)
PP-B6	Met		PP-A1-01 (F), PP-C3-01 (F)
PP-B7	Met		PP-B7-01 (F)
PP-C1	Met		PP-A1-01 (F)
PP-C2	[Not Met]	Met per F&O Disposition	PP-C2-01 (F), PP-C2-02 (S)
PP-C3	[Not Met]	Met per F&O Disposition	PP-C3-01 (F), PP-B7-01 (F)
PP-C4	Met		
ES-A1	Met		ES-A1-01 (S)
ES-A2	Met		ES-A2-01 (S), ES-D1-01 (F)
ES-A3	Met		ES-D1-01 (F)
ES-A4	CC-III		
ES-A5	CC-III		
ES-A6	CC-III		
ES-B1	CC-II		
ES-B2	CC-III		
ES-B3	N/A		ES-B3-01 (S)
ES-B4	Met		ES-D1-01 (F)
ES-B5	N/A		ES-B5-01 (S)
ES-C1	[Not Met]	Met per F&O Disposition	ES-C1-01 (F)
ES-C2	[Not Met]	CC-II per F&O Disposition	ES-C1-01 (F), ES-C2-01 (F)
ES-D1	[Not Met]	Met per F&O Disposition	ES-D1-01 (F)
CS-A1	Met		
CS-A2	CC-II		
CS-A3	[Not Met]	Met per F&O Disposition	CS-A3-01 (F)
CS-A4	[Not Met]	Met per F&O Disposition	CS-A3-01 (F)

Attachment 1

Table V-1: Capability Categories for Supporting Requirements Covered by the PSL Fire PRA Peer Review			
SR	**Capability Category per Peer Review**	**Capability Category Based on Resolution of F&O (Basis for acceptability of CC-I)**	**Active F&Os**
CS-A5	Met		
CS-A6	[Not Met]	Met per F&O Disposition	CS-A6-01 (F)
CS-A7	N/A		
CS-A8	Met		
CS-A9	Met		
CS-A10	CC-III		
CS-A11	[Not Met]	Met per F&O Disposition	CS-A11-01 (F)
CS-B1	[Not Met]	C-II/C-III per F&O Disposition	CS-B1-01 (F)
CS-C1	[Not Met]	Met per F&O Disposition	CS-C1-01 (F)
CS-C2	[Not Met]	Met per F&O Disposition	CS-C2-01 (F)
CS-C3	[Not Met]	Met per F&O Disposition	CS-A11-01 (F)
CS-C4	[Not Met]	Met per F&O Disposition	CS-C1-01 (F), CS-B1-01 (F)
QLS-A1	N/A		Plant St. Lucie did not use qualitative screening.
QLS-A2	N/A		Plant St. Lucie did not use qualitative screening.
QLS-A3	N/A		Plant St. Lucie did not use qualitative screening.
QLS-A4	N/A		Plant St. Lucie did not use qualitative screening.
QLS-B1	N/A		Plant St. Lucie did not use qualitative screening.
QLS-B2	N/A		Plant St. Lucie did not use qualitative screening.
QLS-B3	N/A		Plant St. Lucie did not use qualitative screening.
PRM-A1	Met		
PRM-A2	Met		
PRM-A3	Met		
PRM-A4	Met		
PRM-B1	Met		
PRM-B2	Met		
PRM-B3	Met		
PRM-B4	N/A		
PRM-B5	CC-III		
PRM-B6	N/A		
PRM-B7	Met		
PRM-B8	N/A		
PRM-B9	Met		PRM-C1-01 (F), PRM-B9-01 (S)
PRM-B10	Met		
PRM-B11	[Not Met]	Met per F&O Disposition	HRA-A2-01 (F)
PRM-B12	Met		
PRM-B13	N/A		
PRM-B14	Met		
PRM-B15	N/A		
PRM-C1	[Not Met]	Met per F&O Dispostion	PRM-C1-01 (F)
FSS-A1	Met		FSS-A1-01 (F), FSS-A1-02 (S)
FSS-A2	Met		
FSS-A3	Met		
FSS-A4	Met		FSS-A4-01 (F)
FSS-A5	CC-III		
FSS-A6	CC-I/II		FSS-A6-01 (F)
FSS-B1	Met		

Attachment 1

Table V-1: Capability Categories for Supporting Requirements Covered by the PSL Fire PRA Peer Review			
SR	**Capability Category per Peer Review**	**Capability Category Based on Resolution of F&O (Basis for acceptability of CC-I)**	**Active F&Os**
FSS-B2	CC-II		
FSS-C1	CC-II		FSS-H1-01 (F)
FSS-C2	[CC-I]	CC-II/CC-III per F&O Disposition	FSS-C2-01 (S)
FSS-C3	N/A		
FSS-C4	[CC-I]	CC-II per F&O Disposition	FSS-C4-01 (S)
FSS-C5	CC-I/II		FSS-H2-01 (F)
FSS-C6	CC-I/II		
FSS-C7	N/A		
FSS-C8	N/A		FSS-C8-01 (S)
FSS-D1	Met		
FSS-D2	Met		
FSS-D3	CC-III		
FSS-D4	Met		
FSS-D5	CC-I/II		FSS-H1-01 (F)
FSS-D6	Met		
FSS-D7	[CC-I]	CC-II per F&O Disposition	FSS-D7-01 (S)
FSS-D8	Met		
FSS-D9	[CC-I]	CC-II per F&O Disposition	FSS-D9-01 (S)
FSS-D10	CC-II/III		
FSS-D11	Met		
FSS-E1	Met		
FSS-E2	N/A		
FSS-E3	CC-III		
FSS-E4	[Not Met]	Met per F&O Dispostion	FSS-E4-01 (F)
FSS-F1	CC-I/II		
FSS-F2	N/A		
FSS-F3	N/A		
FSS-G1	Met		FSS-G1-01 (F)
FSS-G2	Met		
FSS-G3	Met		
FSS-G4	CC-III		
FSS-G5	N/A		
FSS-G6	CC-II/III		
FSS-H1	[Not Met]	Met per F&O Dispostion	FSS-H1-01 (F)
FSS-H2	[Not Met]	CC-I, Generic Damage Thresholds used, CC-II requires use of plant specific thresholds (not implemented), consistent with NUREG/CR-6850 Methodology	FSS-H2-01 (F)
FSS-H3	Met		
FSS-H4	Met		
FSS-H5	CC-II		

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Table V-1: Capability Categories for Supporting Requirements Covered by the PSL Fire PRA Peer Review			
SR	**Capability Category per Peer Review**	**Capability Category Based on Resolution of F&O (Basis for acceptability of CC-I)**	**Active F&Os**
FSS-H6	Met		
FSS-H7	Met		
FSS-H8	Met		FSS-H8-01 (F)
FSS-H9	Met		
FSS-H10	Met		
IGN-A1	Met		
IGN-A2	N/A		
IGN-A3	N/A		
IGN-A4	CC-III		IGN-A4-01 (S)
IGN-A5	[Not Met]	Met per F&O Dispostion	IGN-A5-01 (F)
IGN-A6	Met		
IGN-A7	Met		
IGN-A8	CC-III		
IGN-A9	Met		
IGN-A10	CC-III		
IGN-B1	Met		
IGN-B2	Met		
IGN-B3	Met		
IGN-B4	[Not Met]	Met per F&O Dispostion	IGN-B4-01 (S)
IGN-B5	Met		
QNS-A1	N/A		Plant St. Lucie did not use quantitative screening
QNS-B1	N/A		Plant St. Lucie did not use quantitative screening
QNS-B2	N/A		Plant St. Lucie did not use quantitative screening
QNS-C1	N/A		Plant St. Lucie did not use quantitative screening
QNS-D1	N/A		Plant St. Lucie did not use quantitative screening
QNS-D2	N/A		Plant St. Lucie did not use quantitative screening
CF-A1	CC-II/III		
CF-A2	Met		
CF-B1	[Not Met]	Met per F&O Dispostion	CF-B1-01 (F)
HRA-A1	Met		
HRA-A2	[Not Met]	Met per F&O Dispostion	HRA-A2-01 (F)
HRA-A3	[CC-I]	CC-II per F&O Disposition	ES-C2-01 (F)
HRA-A4	[Not Met]	CC-Iper F&O Disposition – completion, allowing upgrade to CC-II, is associated with Table S-2 Item 11 commitment to update post-fire shutdown procedures and associated training.	HRA-A4-01 (F)
HRA-B1	CC-III		
HRA-B2	Met		HRA-A2-01 (F)

Attachment 1

Table V-1: Capability Categories for Supporting Requirements Covered by the PSL Fire PRA Peer Review			
SR	**Capability Category per Peer Review**	**Capability Category Based on Resolution of F&O (Basis for acceptability of CC-I)**	**Active F&Os**
HRA-B3	[Not Met]	CC-I per F&O Disposition. CC-Isufficient based on use of conservative screening HEPs	HRA-B3-01 (F), HRA-B3-02 (F), HRA-B3-03(F)
HRA-B4	[CC-I]	CC-II per F&O Disposition.	ES-C2-01 (F)
HRA-C1	[CC-I]	CC-I per F&O Disposition. CC-I sufficient based on use of conservative screening HEPs	HRA-C1-01 (F)
HRA-D1	CC-II		
HRA-D2	[Not Met]	Met per F&O Dispostion	HRA-B3-03 (F)
HRA-E1	Met		HRA-A2-01 (F)
SF-A1	[Not Met]	Met per F&O Dispostion	SF-A1-01 (F)
SF-A2	[Not Met]	Met per F&O Dispostion	SF-A1-01 (F)
SF-A3	[Not Met]	Met per F&O Dispostion	SF-A1-01 (F)
SF-A4	[Not Met]	Met per F&O Dispostion	SF-A1-01 (F)
SF-A5	[Not Met]	Met per F&O Dispostion	SF-A1-01 (F)
SF-B1	[Not Met]	Met per F&O Dispostion	SF-A1-01 (F)
FQ-A1	Met		
FQ-A2	Met		
FQ-A3	Met		
FQ-A4	Met		HRA-B3-01 (F)
FQ-B1	Met		
FQ-C1	Met		FQ-C1-01 (F), FQ-C1-02 (S), FQ-C1-03 (S)
FQ-D1	Met		FQ-C1-01 (F), FQ-C1-02 (S), FQ-C1-03 (S)
FQ-E1	[Not Met]	Met per F&O Dispostion	FQ-E1-01 (F)
FQ-F1	[Not Met]	Met per F&O Dispostion	FQ-F1-01 (F), FQ-F1-02 (S)
FQ-F2	N/A		
UNC-A1	[Not Met]	Met per F&O Dispostion	UNC-A1-01 (F), UNC-A1-02 (S), UNC-A1-03 (F)
UNC-A2	Met		
MU-A1	Met		MU-A1-01 (S)
MU-A2	Met		MU-A1-01 (S)
MU-B1	Met		MU-A1-01 (S)
MU-B2	Met		MU-A1-01 (S)
MU-B3	Met		MU-A1-01 (S)
MU-B4	Met		MU-A1-01 (S)
MU-C1	Met		MU-A1-01 (S)
MU-D1	Met		MU-A1-01 (S), MU-D1-01 (S)
MU-E1	Met		MU-A1-01 (S)
MU-F1	Met		MU-A1-01 (S)

Attachment 2

Table V-2 FIRE PRA PEER REVIEW RESULTS SUMMARY

Element	Discussion	Supporting Requirement	Related SRs	Observation No	Level of Significance	Basis for Significance	Possible Resolution	Disposition
CS	4kV power and 125VDC control cables required to support the operation of the Containment Spray Pump were not identified. Fire PRA Plant Response model and other Fire PRA support tasks are adversely affected. Perform a comparison of the components identified on the MSO (multiple spurious operation) list against the Fire PRA components for which new cable selection was performed (i.e., components not previously identified on the Appendix R safe shutdown equipment list). Verify that the cable selection for the common components supports all credited operations.	A3	CS-A3, CS-A4	01	Finding	Fire PRA Plant Response model and other Fire PRA support tasks are adversely affected.	Perform a comparison of the components identified on the MSO (multiple spurious operation) list against the Fire PRA components for which new cable selection was performed (i.e., components not previously identified on the Appendix R safe shutdown equipment list). Verify that the cable selection for the common components supports all credited operations.	Reviewed component failure modes to ensure that components for which operation is credited include required power cables.
CS	Include all load cables and applicable control circuit cables as required cables for credited switchgear, since concurrent faults on the load cables and control circuit could prevent proper tripping of the breaker and result in loss of the switchgear. Also review faults on CT cables for their potential impact on breaker operability. These recommendations apply to all credited switchgear.	A6		01	Finding	An analysis has not been completed and needs to be completed to assure this issue evaluated.	Assess all the load power cables and the applicable portions of the associated control circuits in the Fire PRA for their potential impact on the Fire PRA. Concurrent damage to the power cable(s) and control circuit could affect the automatic over-current trip capability of the affected breaker, which in turn could adversely affect the ability of the switchgear to remain energized. This should be assessed for all switchgear credited in the Fire PRA.	Breakers with -CNTL and -PWR have been added to the analysis and to the fault tree. CNTL/PWR cable failures cause failure of the bus.
CS	The documentation for new cable selection and cable routing is highly fragmented. In the documents that were reviewed, there are no references to the plant source documents and document revisions to provide traceability.	C2		01	Finding	The documentation for cable selection did not include a reference to plant source documents.	Provide a consistent document that shows Fire PRA components, functions, cable associated, fire zone location with a reference to plant source documents.	Documentation updates have been implemented to consolidate the cable selection and cable routing data and associated methodologies.

Attachment 2

Table V-2 FIRE PRA PEER REVIEW RESULTS SUMMARY

Element	Discussion	Supporting Requirement	Related SRs	Observation No	Level of Significance	Basis for Significance	Possible Resolution	Disposition
CS	There is no documented methodology for cable location to fire areas.	C1		01	Finding	The documentation did not exist.	Development a documented methodology for locating cable to fire areas.	Documentation updates have been implemented to consolidate the cable selection and cable routing data and associated methodologies.
CS	No evaluation was performed to verify that the new components and cables associated with the Fire PRA is bounded by the existing overcurrent coordination analysis.	B1	CS-C4	01	Finding	The evaluation was not completed at this time.	Evaluate the new cables and components and verify that they are bounded by the current overcurrent coordination analysis.	A detailed review of the coordination analysis was performed including those power supplies associated with Fire PRA components.
CS	There were cable location assumptions that were made and documented in the scenarios task. PSL Fire PRA Scenario Report, Rev 1, Attachment A, has two scenarios that made assumptions (1_47 and 1_26) that cables designated as Y3 were not in the fire area. The justification was a statement that the cables were "Judged not to have cables in this zone due to location of component". No other justification was provided to determine that the cable was not in the area. More justification is needed to document the assumption on cable routing.	A11	CS-C3	01	Finding	There is no justification for the assumed cable routing. SR CS-A11 and CS-C3 cannot be verified without the justification and documentation to validate the assumption on cable routing for components that had no cable selection or routing.	Provide supporting justification and documentation for assumed cable routing.	All exclusions of component/cable fire impacts are based on developed component/cable fire routing data. Eliminated exclusions based on assumptions of routing.
FQ	No identification of significant contributors was available. Appendix C of the Fire PRA Summary report stated that this will come later.	E1	FQ-E1	01	Finding		Perform the analysis of significant contributors in accordance with FQ-E1	Added Importance measures from appended cutsets to Summary Report.
PP	Draft Report NISYS-1251-0001 was reviewed and provides a validation of the FHA and documents the plant specific walkdowns performed for each fire zone boundary. Finding written to finalize this report and incorporate by reference into the plant partitioning report.	B7 and C3	B7 and C3	01	Finding	Document needs to be finalized and incorporated into project documents to provide the technical basis.	Provide evidence of walkdowns to confirm partitioning.	Incorporated reference to report in PP/FIF report. Added Reference 9 to the report.

Attachment 2

Table V-2 FIRE PRA PEER REVIEW RESULTS SUMMARY

Element	Discussion	Supporting Requirement	Related SRs	Observation No	Level of Significance	Basis for Significance	Possible Resolution	Disposition
PP	Need list of excluded areas with basis. Work must have been done to decide what was excluded, but was not presented. Criteria is clearly presented but use of the criteria is not. Necessary to support definition of Global Boundary and whether all appropriate compartments were included.	C2	A1	01	Finding	SR unable to be reviewed. List is necessary to perform review and to ensure technical adequacy.	Include list in report; include for each item the justification for exclusion from further analysis.	Added Note 3 to Table 2-1 regarding basis for exclusion of buildings which do not contain equipment or cables which impact the Fire PRA.
PP	Evidence was presented to the reviewer that raceways supporting PRA equipment exists in the "no man's land" area between unit 1 and unit 2. This area is not currently included as part of an analyzed compartment, however no analysis exists as to why it meets the criteria for exclusion presented in Section 2.1.1. of the report.	A1		01	Finding	Additional Analysis required to ensure PRA addresses fire failures appropriately in this area.	Document a basis for exclusion from the analysis, or add compartments to the fire PRA analysis and quantify the fire failures.	Added Note 3 to Table 2-1 regarding basis for exclusion of buildings which do not contain equipment or cables which impact the Fire PRA.
CF	The basis for the conditional failure probability used in the Altered Events table was not documented.	B1		01	Finding	Documentation/reference supporting the credited conditional failure probabilities provides the technical basis for applicability of these treatments.	Provide basis for the conditional failure probabilities used in the Altered Events table.	Provided additional detail in altered events table with reference to 6850 basis for value used.
ES	No information was identified in the Component and Cable Selection Report (Report 0493060006.101, Revision 1) or the HRA Evaluation Report (Report 0493060006.102, Revision 0) that characterized instrument availability or spurious operability for individual fires.	C2	ES-C2	01	Finding		A review of control room instrumentation should be performed to identify, on a fire-zone basis, those instruments in which unavailable or spurious indications could mislead the operator into performing undesirable actions.	Provided clarification in HRA report, Section 3.
ES	Tables 4.2-1, 4.2-2 (to be completed for Unit 2), B-1 and B-2 provide information on instrumentation associated with PRA basic events and SSEL mapping and disposition. The HRA	C1	ES-C1	01	Finding		Expand the Component and Cable Selection Report to address the impact of a fire in each fire zone (or area) on instrumentation addressed in the HRA Evaluation Report.	One set of SSD instrumentation will remains available to meet SSD systems for an area wide fire. The correlation between SSD instrumentation and operator actions provided in the HRA

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Table V-2 FIRE PRA PEER REVIEW RESULTS SUMMARY

Element	Discussion	Supporting Requirement	Related SRs	Observation No	Level of Significance	Basis for Significance	Possible Resolution	Disposition
ES (cont'd)	Evaluation Report (Report 0493060006.102, Revision 0), Tables A-1 - A-4 and Appendix C provide information on the instrumentation associated with important control room actions. Appendix R instrumentation is specifically identified by bold formatting. However, no information was provided that would allow the impact of a specific fire on the instrumentation set to be identified. For essential instrumentation this information is available in the Response to Fire procedures. The reduced set of instrumentation associated with a fire zone should be used to support estimation of the human failure probabilities associated with a fire scenario.	C1 (cont'd)						report confirms that for each HFE Appendix R instrumentation is available to support the cue for the action. Guidance provided in SSD procedures will identify the instruments available post fire and focus operator cues on these instruments. Since the instrumentation availability is defined on a fire area wide fire basis it will provide a conservative basis for instrumentation available for an individual scenario within the fire area. Incorporated additional discussion in HRA report, Section 3.
ES	PI-03-003 provides instruction for circuit analysis to include review of interlocks, instrumentation, and support system dependencies. Cable routing database was reviewed and confirmed that interlocks, instrumentation, and support system cables were included in equipment effects. However, demonstration of a review of power supplies, etc. was not readily apparent in the Component Selection report. The development of the Fire PRA equipment list inherently considers the entire component and its supporting equipment; however, it is important to document this information to support peer reviews and applications. It is suggested that document the review to show the interlocks,	D1	ES-A2, ES-A3, ES-B4, ES-D1	01	Finding		Improve component selection report, address items identified in this F&O.	SSD and FPRA documentation revised to provide enhanced documentation of component selection and cable selection.

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Table V-2 FIRE PRA PEER REVIEW RESULTS SUMMARY

Element	Discussion	Supporting Requirement	Related SRs	Observation No	Level of Significance	Basis for Significance	Possible Resolution	Disposition
ES (cont'd)	power supplies, etc. are included (or referenced) in the development of the Component Selection section. The equipment selection report states that SSEL equipment required to place the plant in hot standby, the PRA end state, are included in the analysis while equipment only associated with taking the plant to cold shutdown were excluded from analysis. No information is provided to facilitate the assignment of individual SSEL instrumentation to specific plant states, which complicates review against this SR. Expand Component and Cable Selection tables to allow SSEL components to be associated with specific plant states. Components are linked to fault tree Basic Events, but suggest document all potential fire induced sequences are confirmed to be associated with a reactor trip initiating event in the fault tree. Improve component selection report to address items identified in this F&O.	D1 (cont'd)						
IGN	Bayesian updates to generic fire frequencies were performed on a reactor-year basis, consistent with the Standard. The analysis does not include consideration of plant availability as required.	A5	IGN-A5	01	Finding		Revise updated frequencies to include consideration of plant availability.	Attachment K provides the basis for reactor years used, incorporating capacity factor via removal of outage durations.
IGN	An analysis supporting the estimation of plant-specific reactor-years is not described (the number of reactor-years is specified). Add a description of the process of estimating the number of plant-	B4	IGN-B4	01	Suggestion		Add a description of the process of estimating the number of plant-specific reactor years to the fire frequency report.	Attachment K added to provide the basis for the reactor years used.

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Table V-2 FIRE PRA PEER REVIEW RESULTS SUMMARY

Element	Discussion	Supporting Requirement	Related SRs	Observation No	Level of Significance	Basis for Significance	Possible Resolution	Disposition
IGN (cont'd)	specific reactor years to the fire frequency report.	B4 (cont'd)						
PRM	Overall PRM documentation is sparse and doesn't provide the information addressed in the SRs associated with the HLRs described in the Category I, II and III criteria of PRM-C1. In addition, the development of changes made in Tables D1 and D3 are not described (PRM-B9).	C!	PRM-B9	01	Finding		Recommend a separate PRM report that documents in a structured and consistent way the requirements described in the PRM SRs.	Added discussion in Component/Cable report Section 5.0.
FQ	Fire-related SSD actions are currently modeled only through the AlteredEvents file in FRANC, which bypasses the dependency analysis.	C1		01	Finding		Any fire-related SSD actions modeled in the final Fire PRA should be evaluated for potential dependencies with other actions.	Incorporated multipliers applied to cutsets with multiple screening HEPs. See Section 4.1 and Appendix B of HFE Report.
FQ	Documentation of the CDF and LERF analysis to the extent required in the FQ-F1 supporting requirement has not been developed. CDF and LERF values are provided on a scenario bases, but these are not ranked. Basic event correlations have not been addressed nor have uncertainty analyses been performed.	F1		01	Finding	FQ-F1	Document the CDF and LERF analysis to the extent required in the FQ-F1 supporting requirement should be completed as the analysis proceeds.	Additional documentation, including parametric uncertainty have been performed and incorporated into the Fire PRA documentation.
SF	Section 3.13 of the St. Lucie Fire PRA Summary report discusses the seismic/Fire interaction issue, 0493060006.105, Rev 1., concludes, with no supporting evidence that there is no issue and pointed to a set of references as providing the requisite supporting information. A review of these references indicated that they pertained to the seismic issues associated with A-46 resolution and GL-88-20. They did not contain any discussion of seismic/fire issues such as the potential for unique fire initiators,	A1	SF-A2, SF-A3, SF-A4, SF-A5, SF-B1	01	Finding		The five SRs associated with HLR-SR-A specify five specific aspects to evaluate qualitatively to ensure that the insights from the original IPEEE evaluations remain valid in light of knowledge gained from the new Fire PRA. FP&L needs to upgrade the write-up in Section 3.13 of the St. Lucie Fire PRA Summary report to specifically discuss the items in each of the SRs.	The scope of seismic analyses performed for the IPEEE is considered to be sufficient given the low seismic event frequency and magnitudes expected at the PSL site.

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Table V-2 FIRE PRA PEER REVIEW RESULTS SUMMARY

Element	Discussion	Supporting Requirement	Related SRs	Observation No	Level of Significance	Basis for Significance	Possible Resolution	Disposition
SF (cont'd)	the potential for spurious operation or failure of fire detection and suppression systems, the potential for common cause failure of multiple suppression systems or the impact on fire brigade response.	A1 (cont'd)						
HRA	Section 4.1 of H0493060006.102, Rev. 0, briefly discusses reviewing fire failures to identify operator recovery actions for these failures. It was indicated that these recovery actions were included with a screening value of 0.01. No additional information on these recovery actions was provided in the HRA report. A review of the FRANC AlteredEvents File indicated that these "recovery actions were incorporated into the model by altering the failure probability of a related equipment failure basic event to the screening value for the recovery action. The sole documentation was the comment field for the AlteredEvent. The AlteredEvent file also had some additional events that were clearly identified as operator actions. Again, there was no related information in the HRA report. Discussions with St. Lucie personnel revealed that these were actions added to the model logic for several MSOs and set to 1.0. These events were listed in the BE mapping table in the Scenario Report, but were not discussed in the HRA report. The conclusion is that St. Lucie did identify these actions, but the documentation of these actions was severely limited to the point	A2	HRA-B2, HRA-E1, PRM-B11	01	Finding		The HRA report should be modified to provide additional information for the fire-specific actions. As a minimum, a table should be added to list the AlteredEvent elements added to cover a recovery action. The table should define the operator action and provide a summary description of the action and associated equipment, identify the event being altered to account for the action, the assigned probability and the basis for the assigned probability. For each recovery action retained, this basic information should be supplemented with the standard information needed to define and quantify a human action (e.g., timing, cues, etc.) For the MSO-related operator actions, as a minimum, have a reference to the BE mapping table with an explanation of what the actions represent. Any that are retained, must be fully documented.	Additional discussion and process applied for screening HEPs is added to HFE Report section 4.1.

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Table V-2 FIRE PRA PEER REVIEW RESULTS SUMMARY

Element	Discussion	Supporting Requirement	Related SRs	Observation No	Level of Significance	Basis for Significance	Possible Resolution	Disposition
HRA (cont'd)	that it was extremely difficult to locate this information	A2 (cont'd)						
HRA	A number of fire-specific HFEs were identified. Some of these were incorporated into the model via the AlteredEvents table with the definition of the HFE limited to a brief statement in the comment field for the altered event. Other events were added to the model to support the MSO logic with the values set to 1.0. The intent is to determine which HFEs to retain and which HFEs to delete. However, at this point they are in the model with limited documentation and no characterization. As such, the definition of these HFEs is not complete and provides no scenario specific information beyond the fire scenario ID in the AlteredEvents file.	B3		01	Finding			Additional discussion and process applied for screening HEPs is added to HFE Report section 4.1.
FSS	PSL reviewed their cable types and modeled targets as non-IEEE-383 qualified with damage thresholds of thermoplastic cable. No references or description of the cable review was provided. The Fire Scenario Report simply states that 'Most of the targets are cable trays containing non-IEEE-383 qualified cables.' Recommend providing a description of how that determination was made, possibly including references to cable purchase orders, procurement documents, etc.	H2		01	Finding	No basis for target damage thresholds were provided as required by the SR.	Recommend providing a description of how that determination was made, possibly including references to cable purchase orders, procurement documents, etc.	For PSL Unit 1 documentation is not needed to substantiate the use of thermoplastic cable damage criteria. Had thermoset and/or IEEE-383 cable damage criteria or flame spread characteristics been credited, additional documentation would be needed. For Unit 2 cables are thermoset but the use of Kerite-FR cables requires that the thermoplastic damage criteria be used. Thermoset cable flame spread criteria is applicable to U2.

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Table V-2 FIRE PRA PEER REVIEW RESULTS SUMMARY

Element	Discussion	Supporting Requirement	Related SRs	Observation No	Level of Significance	Basis for Significance	Possible Resolution	Disposition
FSS	PSL did not postulate hydrogen (H2) fires other than the turbine generator H2 fires. PSL used the basis that their H2 piping contains excess flow check valves. However, this will not prevent H2 fires. It's likely that plants experiencing H2 fires that contributed to the "potentially challenging" fire frequency also had excess flow check valves. Recommend either postulating H2 fires or developing a stronger technical justification for their exclusion. PSL did not appear consider all pump lube oil fire scenarios (e.g., AFW pumps, Charging Pumps, HPSI pumps, LPSI pumps, MFW pumps, etc.). These scenarios often involve significant quantities of oil causing widespread damage in the fire compartment. They can also contribute to multi-compartment fire risk. Note that some lube oil scenarios appear to have been considered by PSL. Specifically, MFW and turbine lube oil fires were postulated. In speaking with the analysts, they indicated that other pumps tend not to have large quantities of lube oil and that source-target data for oil scenarios was often collected during walkdowns. However, there was little documentation of this, and very few oil scenarios were quantified in FRANC.	A1		01	Finding	PSL did not postulate H2 fires and oil fires as specified by NUREG/CR-6850, and minimal basis for this deviation was provided. These fires can be risk significant due to the potential for widespread damage in the fire compartment.	Either postulate H2 and oil fires or develop a stronger technical justification for their exclusion.	Hydrogen for VCT tank isolated from other equipment components. AFW steam driven pump oil fire addressed in AFW C pump fire. Located in outdoor area thus limiting impact of this fire.

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Table V-2 FIRE PRA PEER REVIEW RESULTS SUMMARY

Element	Discussion	Supporting Requirement	Related SRs	Observation No	Level of Significance	Basis for Significance	Possible Resolution	Disposition
FSS	1_55E Scenario F09 (IMUX-4 Cabinet) was quantified with no targets (i.e., UNL-only). However, during the peer review walkdowns, a stack of five cable trays (C31, C30, M30, M31, and L30). However, these trays were not postulated to fail in the FRANC quantification. Failure of these trays represents a potential 1.0 CCDP (similar to adjacent heat trace panels) and CDF 1E-7.	A4		01	Finding	Risk-significant targets (CCDP of 1.0) were not modeled as damaged when they would indeed be damaged.	Re-quantify scenario with affected targets failed.	Revised/Corrected.
FSS	A 0.1 CCDP was modeled for main control room fires in which operators rely on the alternate shutdown panel (i.e, abandonment). There could be scenarios where the damage caused by the fire cannot be mitigated from the alternate shutdown panel. For example, if a particular scenario requires the HPSI pumps to function, and those pumps are not controllable from the alternate shutdown panel, then the 0.1 CCDP may not be appropriate.	A6		01	Finding	In certain scenarios, the current Fire PRA model may credit the alternate shutdown panel when it is not sufficient to mitigate the scenario.	Review the scenarios in which alternate shutdown is modeled. Perform an assessment as to whether the alternate shutdown panel can mitigate the fire-induced failures and adjust the CCDP appropriately.	Specific CCDPs are calculated for each C/R abandonment/non-abandonment scenario. Calculated CCDPs are increased to account for potential impact of abandonment for the CR abandonment cases.
FSS	This Suggestion F&O is at PSL's request to provide an F&O for all SRs meeting CC-I, including a suggestion on how to achieve CC-II. Time-dependent Heat Release Rate (HRR) profiles are required to be implemented to meet CC-II. This is most related to calculating non-suppression probabilities, and would require a fair amount of additional analysis (specific to each source) than the generic	C2	FSS-C2	01	Suggestion	CC-I met. This is just a suggestion for how to meet CC-II.	Model time-dependent HRR profiles for risk-significant scenarios. Calculate NSPs specific to the timing associated with the HRR profile and geometric configuration of each risk significant ignition source.	Incorporated time dependent HRR profiles and associated NSPs.

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Table V-2 FIRE PRA PEER REVIEW RESULTS SUMMARY

Element	Discussion	Supporting Requirement	Related SRs	Observation No	Level of Significance	Basis for Significance	Possible Resolution	Disposition
FSS (cont'd)	NSPs currently modeled. CC-I met. This is just a suggestion for how to meet CC-II. Model time-dependent HRR profiles for risk-significant scenarios. Calculate NSPs specific to the timing associated with the HRR profile and geometric configuration of each risk significant ignition source.	C2 (cont'd)						
FSS	This Suggestion F&O is at PSL's request to provide an F&O for all SRs meeting CC-I, including a suggestion on how to achieve CC-II. PSL used generic, generally bounding severity factors. In order to achieve CC-II, severity factors can be developed based on the specific geometry and fire characteristics of each scenario. For each risk significant ignition source, this would require measuring data such as distance to the nearest target and applying fire modeling equations to calculate the fraction of fires that are non-damaging versus damaging. CC-I met. This is just a suggestion for how to meet CC-II. Develop severity factors specific to each risk significant ignition source based on the specific fire characteristics and geometry of each source.	C4	FSS-C4	01	Suggestion	CC-I met. This is just a suggestion for how to meet CC-II.	Develop severity factors specific to each risk significant ignition source based on the specific fire characteristics and geometry of each source.	Incorporated scenario specific configuration and severity factors.
FSS	This Suggestion F&O is at PSL's request to provide an F&O for all SRs meeting CC-I, including a suggestion on how to achieve CC-	D7	FSS-D7	01	Suggestion	CC-I met. This is just a suggestion for how to meet CC-II.	In order to meet CC-II, PSL should review plant-specific data to ensure no outlier behavior from the generic estimates.	Confirmed no outlier behavior for suppression and detection system availability.

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Table V-2 FIRE PRA PEER REVIEW RESULTS SUMMARY

Element	Discussion	Supporting Requirement	Related SRs	Observation No	Level of Significance	Basis for Significance	Possible Resolution	Disposition
FSS (cont'd)	II. PSL developed and applied generic non-suppression probabilities by reviewing the EPRI Fire Events Database. Note F&O FSS-H1-01 to document a strong technical basis for this approach. In order to meet CC-II, PSL should review plant-specific data to ensure no outlier behavior from the generic estimates. CC-I met. This is just a suggestion for how to meet CC-II. In order to meet CC-II, PSL should review plant-specific data to ensure no outlier behavior from the generic estimates.	D7 (cont'd)						
FSS	This Suggestion F&O is at PSL's request to provide an F&O for all SRs meeting CC-I, including a suggestion on how to achieve CC-II. PSL did not postulate failures due to smoke damage. This is sufficient for CC-I. In order to meet CC-II, PSL should evaluate fire risk associated with failures caused by smoke, and not just temperature / thermal radiation. CC-I met. This is just a suggestion for how to meet CC-II. In order to meet CC-II, PSL should evaluate fire risk associated with failures caused by smoke, and not just temperature/thermal radiation.	D9	FSS-D9	01	Suggestion	CC-I met. This is just a suggestion for how to meet CC-II.	In order to meet CC-II, PSL should evaluate fire risk associated with failures caused by smoke, and not just temperature / thermal radiation.	Qualitative analysis provided which documents that the thermal damage criteria envelopes the smoke and sensitive electronics damage criteria.
FSS	PSL's multi-compartment evaluation consisted of a two-stage screening approach. During the first stage, a 0.0074 barrier	G1		01	Finding	Inappropriate application of the 0.0074 multiplier may result in screening	Simply don't apply the 0.0074 screening criteria at the first stage of the screening process.	HGL/MCA evaluation has been revised to consider adjacent zones with fixed openings where the 0.0074 criteria is not

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Table V-2 FIRE PRA PEER REVIEW RESULTS SUMMARY

Element	Discussion	Supporting Requirement	Related SRs	Observation No	Level of Significance	Basis for Significance	Possible Resolution	Disposition
FSS (cont'd)	failure probability (which corresponds to a solid wall) was inappropriately applied. This resulted in several scenarios being inappropriately screened at the first stage.	G1 Cont'd)				scenarios that are potentially significant.		applicable.
FSS	Documentation of PSLs multi-compartment analysis, as well as most of the FSS-related tasks, was light. These analyses seemed technically adequate, however it took a fair amount of verbal explanation to understand. Recommend improving documentation of this analysis.	H8		01	Finding	The methodology could not be understood without significant verbal explanation.	Document the methodology, inputs, outputs, and conclusions in a manner that can allow a Fire PRA engineer to understand the analysis without significant explanation.	Revised HGL/MCA analysis. Methods associated with panel factors and lower transient HRR have been eliminated from the analysis.
FSS	Attachment A of the Fire Scenario Report documents cases where certain failures/BEs were excluded from the mapping based on an either assumed cable routing. These cases were spot-checked and no problems were noted. However, no discussion of the uncertainties associated with this assumed routing was provided, as required by the SR. Note that failures/BEs appear only to have been excluded when there was a high confidence in the assumed cable routing. For example, there is a high confidence that main feedwater is not affected in containment.	E4		01		No discussion of the uncertainties associated with this assumed routing was provided, as required by the SR.	Simply provide of uncertainties associated with assumed cable routing.	Y3 component exclusions are now based on cable routing only.
FSS	In several cases, PSL implemented methods beyond those available in beyond industry accepted guidance documents (e.g., NUREG/CR-6850 and its supplements). For example, PSL created their own multipliers / severity factors for fires that cause damage beyond the ignition source	H1		01	Finding	While these methods seem appropriate, the level of documentation provided did not allow detailed review by the peer reviewers. In addition, methods beyond industry accepted guidance	Simply provide stronger documentation of the technical bases where methods beyond industry guidance were implemented. For example, when severity factors were developed based on a Fire Events Database Review, documentation might include an explicit listing and written	Beyond 6850 methods, panel factor approach, has been eliminated from the PSL Fire PRA. The use of the 69 kW HRR for transient fires has been limited to those fire zones in which "zero transients" are allowed in order to account for the potential violation

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Table V-2 FIRE PRA PEER REVIEW RESULTS SUMMARY

Element	Discussion	Supporting Requirement	Related SRs	Observation No	Level of Significance	Basis for Significance	Possible Resolution	Disposition
FSS (cont'd)	by reviewing the EPRI Fire Events Database. A second example is that PSL modeled transient fires using the motor fire heat release rate distribution, which is much smaller than the transient fire distribution. A third example is not applying the "Location Factor" to account for wall/corner effects on flame height and plume temperature distribution. While these methods seem appropriate, documentation of the technical bases for these methods was generally lacking. Methods beyond industry accepted guidance (e.g., NUREG/CR-6850 and its supplements) should have documented technical bases of similar quality and magnitude to those provided in NUREG/CR-6850. Also, PSL should be aware that methods beyond industry accepted guidance documents may be viewed critically by the NRC.	H1 (cont'd)				(e.g., NUREG/CR-6850 and its supplements) should have documented technical bases of similar quality and magnitude to those provided in NUREG/CR-6850.	disposition of each event.	of the administrative controls.
HRA	The definitions of the HFEs for existing actions used the existing internal events definitions, which were defined in the EPRI HRA Calculator. Modifications were made to account for general categories of time available, accessibility, and complexity. This appears to be adequate for Cat 1 where a task analysis is not needed. For Cat 2, a more detailed analysis of HFEs for specific fires needs to be performed, along with a corresponding task analysis.	B3	HRA-D2	03	Finding		For existing internal events actions included in the Fire PRA, provide a more complete definition to support the quantification. Note, the detail of the definition can be scaled to the significance of the action (see HRA-C1, Cat 2).	Use of HRA multipliers provides a bounding assessment of the impact of the fire on HEPs defined by the internal events model. HRA Calculator is used to define the new values for combination event recoveries given these revised base HEP values.

Attachment 2

Table V-2 FIRE PRA PEER REVIEW RESULTS SUMMARY

Element	Discussion	Supporting Requirement	Related SRs	Observation No	Level of Significance	Basis for Significance	Possible Resolution	Disposition
UNC	The referenced SRs (e.g., QU-E3) requires an estimation of the uncertainty distribution for fire-induced CDF, which is not included in the Fire PRA.	A1		03	Finding		Provide an estimate of the uncertainty of fire-initiated CDF (or propagate CDF uncertainty).	Uncertainty evaluation performed and incorporated into the summary report.
UNC	The uncertainty analysis documented in Appendix D of the Fire PRA Summary Report covers the major sources of uncertainty, except for those associated specifically with LERF.	A1		01	Finding	See requirements of UNC-A1, specifically reference SRs LE-F2 and LE-F3	Add a LERF-specific section to the uncertainty analysis and document the unique impacts of Fire PRA on the LERF analysis and results.	Added sensitivity and uncertainty analysis for LERF for both PSL units.
HRA	Screening HEP quantification was used to adjust the existing internal event PRA to account for fire impacts. This included feasibility factors (cues availability, accessibility of local action) and adjustment factors based on time available and complexity. This approach is appropriate for the stage of the Fire PRA.	C1		01	Finding		To satisfy Cat 2 requirements, perform detailed human reliability analyses for the significant HFEs in the context of specific fire scenarios.	Use of HRA multipliers provides a bounding assessment of the impact of the fire on HEPs defined by the internal events model. HRA Calculator is used to define the new values for combination event recoveries given these revised base HEP values.
HRA	For new fire-related actions, there is no evidence of any definition of the HFE beyond the title in the AlteredEvents table.	B3		02	Finding		Once the fire response procedures are finalized, the HFE definitions should be completed for operator actions modeled sufficient to support the quantification. Note, the detail of the definition can be scaled to the significance of the action (see HRA-C1, Cat 2).	The use of the screening approach for adjusting FPIE model HEPs and the use of screening HEPs is sufficient to support this application.
HRA	A review of modeled actions is planned to be performed once draft procedures are generated from the Fire PRA. However, at present no such review has been performed except for a limited board walkthrough documented in Appendix C of the Human Failure Evaluation report.	A4		01	Finding		Once fire response procedures are finalized, perform talk-throughs with plant operations and training personnel, at least for risk-significant actions, to support the HRA for these actions.	The use of the screening approach for adjusting FPIE model HEPs and the use of screening HEPs is sufficient to support this application. A review against the draft post fire procedure revision is identified as an implementation item in LAR Table S-2, Item 11.

Attachment 3

Frehafer, Ken

From: Lingam, Siva [Siva.Lingam@nrc.gov]
Sent: Friday, June 07, 2013 5:29 AM
To: Frehafer, Ken
Cc: Quichocho, Jessie; Poole, Justin; Rodriguez, Rafael; Klein, Alex; Poole, Justin
Subject: St. Lucie NFPA-805 LAR Acceptance Review Clarification Questions

Follow Up Flag: Follow up
Flag Status: Flagged

Below is the summary of the supplemental FPRA information needed to complete our acceptance review for St Lucie. Please provide the responses on the docket. Thank you.

(1) Findings PP-C3-01, ES-D1-01, CS-A3-01 and HRA-A2-02 are identified in Table V-1 but no corresponding dispositions are provided in Table V-2. Provide an updated Table V-1 which accurately cross-references to the Findings in Table V-2 or explain the reason for these exclusions from Table V-2 and provide a revised Table V-2 that includes these findings.

(2) Table V-1 identifies 25 SRs as Not Met and 8 as meeting CC-I only. Examples include but are not limited to Findings ES-C2-01, HRA-A2-01, HRA-B3-01, HRA-B3-02, and HRA-A4-01. Furthermore, the following PRA HRA modeling findings are noted:

(a) Of the 12 HRA-related SRs from Part 4 of ASME/ANS RA-Sa–2009, four SRs were identified as Not Met, and three are only met at CC-I. Additionally, HRA-related findings are also written against other non-HRA SRs, e.g., FQ-C1 and ES-C2.

(b) Finding HRA-A2-01 noted that the fire-related manual actions were not included as basic events in the fire PRA model but rather "were incorporated into the model by altering the failure probability of a related equipment failure basic event" and concluded that "[the] documentation is not sufficient to support FPRA peer review and future use."

(c) The dispositions to SRs HRA-D2-01 and HRA-C1-01 note the use of "bounding" multipliers to account for dependencies between fire-related HFEs and the dispositions to SRs HRA-B3-02 and HRA-A4-01 note the use of "the screening approach for adjusting FPIE model HEPs."

Provide the results of a post-disposition self-assessment of the capability category of each of the 25 SRs identified by the peer review as Not Met or meeting CC-I only. For each SR determined to not be met or to not meet CC-II or better, provide a justification for why this is acceptable for the NFPA 805 application (i.e., technically adequate to support the FREs and post-transition plant change evaluations). In the self-assessment, specifically address why the dispositions to the SRs identified in items (b) and (c) resolve the associated findings and why the HRA is adequate to support the NFPA 805 application. The response to this RAI should be provided in a revised Table V-2 or new Table V-3.