



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

February 24, 2015

LICENSEE: Southern Nuclear Operating Company
FACILITY: Joseph M. Farley Nuclear Plant, Units 1 and 2
SUBJECT: SUMMARY OF SITE AUDIT TO SUPPORT THE REVIEW OF A LICENSE AMENDMENT REQUEST FOR JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2, TO TRANSITION TO THE NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 805 FIRE PROTECTION LICENSING BASIS (TAC NOS. ME9741 AND ME9742)

The purpose of this summary is to document the results of an audit performed at Joseph M. Farley Nuclear Plant, Units 1 and 2 (Farley), associated with a National Fire Protection Standard 805 (NFPA 805) license amendment requested (LAR) dated September 25, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession Package No. ML122790258), as supplemented.

A review team, consisting of U.S. Nuclear Regulatory Commission (NRC) staff and contractors from the Southwest Research Institute (SwRI)/Center for Nuclear Waste Regulatory Analyses (CNWRA) participated in a regulatory audit of the Southern Nuclear Operating Company (SNC) Joseph M. Farley Nuclear Plant, Units 1 and 2, located in Columbia, Alabama, from March 25 – 29, 2013. The regulatory audit supports the review of the LAR dated September 25, 2012, filed by the SNC to transition the plant's fire protection licensing basis to Title 10 of the *Code of Federal Regulations* (CFR) 50.48(c), which endorses with exceptions the National Fire Protection Association (NFPA) Standard 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," 2001 Edition.

The purpose of the audit was to gain an understanding of the information needed to support the staff's licensing decision regarding the LAR and to develop high quality requests for additional information, as needed.

The audit team consisted of 8 NRC and 3 CNWRA (NRC contractors) team members. Enclosure 1 provides the schedule of activities during the audit. Enclosure 2 lists audit participants from NRC, CNWRA, and Farley including their contractors who participated in the audit.

The audit team held an entrance meeting on Monday, March 25, 2013, with NRC staff and contractors, Farley staff and contractors, and industry representatives. Technical discussions were focused on five major areas: Fire Protection Engineering (FPE), Safe Shutdown/Circuit Analyses (SSD/CA), Fire Probabilistic Risk Assessment (PRA), Fire Modeling (FM), and programmatic review. Farley conducted plant walkdowns and presentations focusing on these technical areas. Enclosure 3 contains a list of documents reviewed by the team.

At the conclusion of the audit, the team participated in an exit meeting with Farley on March 29, 2013. NRC staff provided a brief conclusion on the audit goals and objections. The attendance list for the exit meeting is provided in Enclosure 4.

Docket Nos.: 50-348 and 50-364

Facility Operating License Nos.: NPF-2 and NPF-8

Enclosures:
As Stated

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Schedule of Activities

Monday, March 25, 2013

8:00 am Audit team members established computer connections, and began document reviews
9:45 am Audit entrance meeting
 Plant overview discussions
10:00 am Commencement of technical PRA, FM, NFPA 805 Chapter 3, radioactive release, recovery actions, non-power operations (NPO), safe shutdown (SSD), nuclear safety capability assessment (NSCA)
12:45 pm Security Briefing, badging
2:00 pm Technical reviews: FM, radioactive release, SSD, fire PRA, control room abandonment, multiple spurious operations (MSO), recovery actions, NPO, NSCA, FPE
4:00 pm NRC Audit team debrief meeting
4:15 pm Licensee briefing
4:30 pm Adjourn for the day

Tuesday, March 26, 2013

8:00 am Prepare for Farley plant walkdowns
10:00 am Security briefing and badging, dosimetry issuance, pre-job brief for walkdowns
12:00 pm Plant walkdown tours were conducted for PRA, FM, and SSD
2:30 pm Post walkdown discussion and debrief
4:30 pm Audit team debrief meeting
5:00 pm Licensee briefing
5:15 pm Adjourn for the day

Wednesday, March 27, 2013

8:00 am Morning breakout sessions and interviews
8:30 am Review and walkdown questions/debrief and discussion
9:30 am Control room abandonment, plant modifications, FPE, SSD, FM, and fire PRA reviews continued
10:00 am Radioactive release breakout
12:00 pm Technical Reviews continued from morning sessions
1:00 pm Discussion with licensee on RAI process
2:00 pm Programmatic breakout
4:30 pm Audit team debrief meeting
5:00 pm Licensee wrap up meeting
5:15 pm Adjourn for the day

Thursday, March 28, 2013

8:00 am Morning breakout sessions and interviews, final pre-RAI questions reviewed
8:30 am Review areas: FM, Appendix R evaluation, SSD, defense in depth, safety margin, breaker control, fire PRA
12:00 pm Technical Reviews continued from morning sessions
4:30 pm Audit team debrief meeting
5:00 pm Licensee wrap up meeting
5:15 pm Adjourn for the day

Friday, March 29, 2013

8:00 am Audit exit meeting
8:30 am Adjourn

List of Participants

U.S. Nuclear Regulatory Commission Team

- Leslie Fields NRC Audit Team Leader
- Alex Klein NRC Branch Chief
- Jay Robinson NRC NFPA 805 PM
- Paul Lain NRC Technical Lead
- Alayna Pearson NRC FPE/Fire Modeling
- J. S. Hyslop NRC FPRA
- Thinh Dinh NRC SSD/CA
- Ray Gallucci NRC FPRA

Center for Nuclear Waste Regulatory Analyses Team

- Marc Janssen Fire Modeling/Lead
- Jason Huczek Fire Modeling
- Robert Fosdick Programmatic/Lead

Farley Nuclear Plant Team

- Chip Westberry SNC Site 805 Project Manager
- Jeff Branum SNC Licensing Project Manager
- Pat Long SNC Fire Protection Supervisor
- John Lattner SNC Fire Protection Principal Engineer
- Matthew Landry SNC RIE
- Mike Macfarlane SNC Risk Modeling Manager
- Amir Afzali SNC RIE Director
- Clayton Price SNC Safe Shutdown
- Pam Burns SNC
- Beomee Jeong SNC Fire PRA Leader
- Young Jo SNC Technical Oversight
- Owen Scott SNC RIE Supervisor
- Kiang Zee ERIN RIE Support
- Dan Funk ERIN RIE Support
- Liz Kleinsorg HAI LAR Development
- Jim Lechner HAI LAR Development
- David Parker HAI LAR Development
- Reese Gambrell HAI LAR Development
- Brandon Jamar HAI LAR Development
- Becky Puckett HAI LAR Development
- Rob Jackson HAI LAR Development/VC Summer Contractor (Worley Parsons)

List of Documents Reviewed

1. "Generic Fire Modeling Treatments," Rev. 0, January 15, 2008
2. "Supplemental Generic Fire Model Treatments: Closed Electrical Panels," Supplement 1, Rev. B, October 11, 2011
3. "Supplemental Generic Fire Model Treatments: Hot Gas Layer Tables," Supplement 2, Rev. G, October 10, 2011
4. "Supplemental Generic Fire Model Treatments: Transient Ignition Source Strength," Supplement 3, Rev. E, November 7, 2011
5. Landry, M.G., "Risk-Based Analysis: RBA 12-008-F," Memorandum to File, June 1, 2012
6. Farley Fire Scenario Report, PRA-BC-F-11-014, Rev. 2, Body of Report & Appendix B, "Summary Fire Modeling Separation Distances"
7. Evaluation of Units 1 and 2 Control Room Abandonment Times at the Joseph M. Farley Nuclear Plant, Attachment 1 to PRA-BC-F-11-014, Rev. 0
8. Farley HGL and Multi-Compartment Analysis Report, PRA-BC-F-11-015, Rev. 2
9. Farley Fire PRA Summary Report, PRA-BC-F-11-017, Rev. 2, Body of Report
10. Farley Fire PRA Sensitivity Analysis Report, PRA-BC-F-12-004, Rev. 0
11. "Evaluation of Dow Corning 561® Transformer Oil in Plant Hatch Switchgear Rooms," DOEJ-HRSNC320254-M001, Version 2
12. Pictures taken by FNP personnel of Units 1 & 2 Electrical Penetration Rooms
13. SNC-1, Quality Assurance Topical Report, Version 11.0
14. NMP-ES-035, Fire Protection Program
15. NMP-ES-027-001, Engineering Maintenance Rule Implementation
16. NMP-ES-035-001, Fire Protection Program Implementation
17. NMP-AD-008-F03, Version 3.0, 10 CFR 50.54(p) Evaluation, Security Plan and Security Training & Qualification Plan Review
18. NMP-AD-008-F02, Version 5.0, 10 CFR 50.54(a) Evaluation, Quality Assurance Program Review
19. NMP-AD-008-F01, Version 7.1, Applicability Determinations (checklist)
20. NMP-AD-008, Version 15.2, Applicability Determinations
21. NMP-AD-008-F04, Version 4.1, 10 CFR 50.54(q) Screening Evaluation
22. NMP-ES-035-GL01, Version 1, FP Program Guideline
23. NMP-ES-035-010, Version 1, Fire Brigade
24. NMP-ES-035-001, Version 8, FP Program Implementation
25. NMP-ES-035, Version 4, Fire Protection Program
26. PRA-BC-F-11-009, Plant Partitioning and Fire Ignition Frequency
27. PRA-BC-F-11-006, Version 1, Seismic-Fire Interactions
28. PRA-BC-F-11-016, Human Reliability Analysis (HRA) for Fire Events
29. PRA-BC-F-11-014, Fire Scenario Development
30. PRA-BC-F-11-014, Att. 1, Evaluation of MCR Abandonment
31. PRA-BC-F-11-013, Version 1, Circuit Failure Mode and Likelihood Analysis Fire Protection Program Documents
32. PRA-BC-F-11-004, Fire PRA Logic Model
33. PRA-BC-F-12-004, Fire PRA Sensitivity Analysis
34. PRA-BC-F-11-002, Component Selection
35. PRA-BC-F-11-015, Hot Gas Layer (HGL) and Multi-Compartment Analysis (MCA)
36. SE-C051326701-008, NFPA-805 Fire Risk Evaluations
37. PRA-BC-F-11-017, Fire PRA Summary Report
38. Spec FE-S-O7-002

LIST OF MEETING ATTENDEES

Name	Organization
Leslie Fields	NRC Audit Team Lead
J. S. Hyslop	NRC Fire PRA
Jason Huczek	SWRI – CNWRA Fire Modeling
John Horn	SNC Regulated Affairs
Cheryl Gayheart	SNC-FNP-Plant Manager
Owen Scott	SNC Risk Informed
Ray Martin	FNP
Mike Macfarlane	SNC Risk Informing Engineer
Jeff Branum	SNC Regulatory Affairs
Ray Gallucci	NRC Fire PRA
Thinh Dinh	NRC
Ray Herrin	FNP Operations Manager
Bill Arene	Lead Licensing Engineer
Chip Westberry	Project Manager
Forrest Hundle	FNP Nuclear Oversight Manager
Tom Nerbit	FNP Operations
Barbara Taylor	FNP Performance Improvement
Pamela Burns	FNP Circuit Analysis
Young Jo	SNC
Beomhee Jeong	SNC
Matt Landry	SNC
Paul Lain	NRC
Alayna Pearson	NRC
John Lattner	SNC Fire Protection
Clayton Price	SNC
Alan Holder	Duke Energy
Alex Klein	NRC

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RidsNrrDraAfpb Resource	RidsNrrPMFarely Resource
RidsNrrDraAhp Resource	SWilliams, NRR
RidsNrrDraApla Resource	

ADAMS Accession No. ML15043A459

* Via memo

OFFICE	NRR/DORL/LPL2-1/PM	NRR/DORL/LPL2-1/LA	NRR/DRA/APLA/BC
NAME	SWilliams	SFiguroa	HHamzehee*
DATE	02/23/15	02/23/15	02/05/15
OFFICE	NRR/DRA/AFPB/BC	NRR/DORL/LPL2-1/BC	NRR/DORL/LPL2-1/PM
NAME	AKlein*	RPascarelli	SWilliams
DATE	02/05/15	02/24/15	02/24/15

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