



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION II  
245 PEACHTREE CENTER AVENUE NE, SUITE 1200  
ATLANTA, GEORGIA 30303-1257

December 08, 2011

EA-11-274

Mr. William Jefferson, Jr.  
Vice President  
Carolina Power and Light Company  
Shearon Harris Nuclear Power Plant  
5413 Shearon Harris Road  
New Hill, NC 27562

**SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT - NRC TRIENNIAL FIRE PROTECTION INSPECTION REPORT 05000400/2011011 AND EXERCISE OF ENFORCEMENT DISCRETION**

Dear Mr. Jefferson:

On September 23, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed a triennial fire protection inspection at your Shearon Harris Nuclear Power Plant. The enclosed inspection report documents the inspection results, which were discussed on that date with you and members of your staff. On December 8, 2011, a final exit meeting was conducted to discuss the results of this inspection with Mr. Corlett, and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

The enclosed report documents one NRC-identified finding of very low safety significance (Green). This finding was determined to involve a violation of NRC requirements. However, because of the very low safety significance and because it was entered into your corrective action program, the NRC is treating the violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the NRC Enforcement Policy. If you contest this NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Senior Resident Inspector at the Shearon Harris nuclear power plant. In addition, if you disagree with the crosscutting aspect assigned to this finding, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region II, and the NRC Senior Resident Inspector at the Shearon Harris nuclear power plant.

CP&L

The enclosed report also documents three noncompliances for which the NRC is exercising enforcement discretion in accordance with Section 9.1 of the NRC Enforcement Policy, "Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48)." The noncompliances are associated with your implementation of the requirements and standards of Harris Operating License Condition 2.F, "Fire Protection Program." The NRC is not taking enforcement action for these noncompliances because they meet the criteria of the NRC's Interim Enforcement Policy Regarding Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48). In this case, the NRC concluded that: (1) Carolina Power & Light entered the noncompliances into its corrective action program and implemented appropriate compensatory measures; (2) the noncompliances were not associated with a finding that the reactor oversight process significance determination process would evaluate as Red; (3) the noncompliances were not willful; and (4) Carolina Power & Light submitted a letter of intent, before December 31, 2005, stating its intent to transition to 10 CFR 50.48(c), which includes approaches in National Fire Protection Association Standard 805-2001 Edition (NFPA 805). To address these noncompliances, corrective actions and plant modifications were implemented as part of your transition to NFPA 805. Based on these corrective actions, and in accordance with NRC Inspection Manual Chapter 0305, Section 11.05, Treatment of Items Associated with Enforcement Discretion, subsections 11.05.b and 11.05.c, the NRC will refrain from including the noncompliances in the Agency Action Matrix.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at: <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

**/RA/**

Joel T. Munday, Director  
Division of Reactor Safety

Docket No.: 50-400  
License No.: NPF-63

Enclosure: Inspection Report 05000400/2011011  
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

CP&amp;L

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Sincerely,

/RA/

Joel T. Munday, Director  
Division of Reactor Safety

Docket No.: 50-400  
License No.: NPF-63  
Enclosure: Inspection Report 05000400/2011011  
w/Attachment: Supplemental Information  
cc w/encl: (See Page 3)  
Distribution w/encl:  
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RIDSNNRDIRS  
PUBLIC  
RidsNrrPMShearonHarris Resource

 PUBLICLY AVAILABLE NON-PUBLICLY AVAILABLE SENSITIVE NON-SENSITIVEADAMS:  Yes ACCESSION NUMBER: ML# 113420167  SUNSI REVIEW COMPLETE  FORM 665 ATTACHED

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NAME	B. Correll	R. Nease	R. Rodriguez	P. Braxton	N. Merriweather	M. Thomas	G. Wiseman
DATE	12/8/2011	12/7/2011	11/30/2011	12/2/2011	12/2/2011	12/2/2011	12/2/2011
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
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NAME	J. Montgomery	C. Evans	R. Musser				
DATE	12/5/2011	12/6/2011	12/6/2011				
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CP&L

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket No.: 50-400

License No.: NPF-63

Report No.: 05000400/2011011

Licensee: Carolina Power and Light Company

Facility: Shearon Harris Nuclear Power Plant, Unit 1

Location: 5413 Shearon Harris Road  
New Hill, NC 27562

Dates: August 29 - September 2 (Week 1)  
September 19 - 23 (Week 2)

Inspectors: R. Rodriguez, Senior Reactor Inspector (Lead Inspector)  
P. Braxton, Reactor Inspector  
B. Correll, Reactor Inspector (Region IV)  
N. Merriweather, Senior Reactor Inspector  
M. Thomas, Senior Reactor Inspector  
G. Wiseman, Senior Reactor Inspector  
J. Montgomery, Reactor Inspector (in-office review of open items,  
Section 4OA5)

Accompanying Personnel: H. Barrett, Sr. Fire Protection Engineer (NRR)  
G. MacDonald, Senior Reactor Analyst  
D. Orr, Senior Reactor Inspector (Region I)

Approved by: Rebecca L. Nease, Chief  
Engineering Branch 2  
Division of Reactor Safety

Enclosure

## SUMMARY OF FINDINGS

IR 05000400/2011011: August 29 - September 2, 2011 and September 19 – 23, 2011; Shearon Harris Nuclear Plant, Unit 1; Triennial Fire Protection Inspection.

This report covers an announced two-week Triennial Fire Protection Inspection (TFPI) by a team of six regional inspectors as well as an in-office review of open items by one regional inspector. One NRC-identified finding of very low safety significance (Green) was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Cross cutting aspects are determined using IMC 0310, "Components within the Cross Cutting Areas." Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor oversight Process," Revision 4, dated December 2006.

### NRC-Identified and Self-Revealing Findings

#### **Cornerstone: Mitigating Systems**

- Green. The team identified a non-cited violation of Harris Nuclear Plant Technical Specification 6.8.1.a. for inadequate guidance in fire response abnormal operating procedure AOP-036.04, "Fire Areas: 1-A-BAL-C, 1-A-BAL-D, 1-A-BAL-F, 1-G, FPYARD, Revision 17." Specifically, the procedure could not have been performed as written in that, AOP-036.04, Section 3.1, directed operators to implement a step in the procedure that did not exist. The licensee initiated Nuclear Condition Report 489092 to address this issue in the Corrective Action Program and subsequently revised the procedure.

The team determined that inadequate fire response procedure guidance was a performance deficiency. This finding was more than minor because it was associated with the procedure quality attribute of the mitigating systems cornerstone and it affected the cornerstone objective of protection against external events (i.e., fire). The team assessed this finding using IMC 0609, Appendix F, Fire Protection Significance Determination Process. The team assigned a low degradation rating to this finding because the abnormal operating procedure deficiency was compensated by available emergency operating procedure guidance, operator experience/familiarity, and training. It was likely that plant operators would have been able to assess plant parameters and would have taken the appropriate actions required to ensure post-fire safe and stable plant conditions. Therefore, this finding was of very low safety significance (Green). The cause of this finding was determined to have a cross cutting aspect in the Human Performance Area, Resources Component, because the licensee's validation and verification process did not ensure that the procedure was adequate and accurate. (H.2 (c)). (Section 1R05.01.b)

## REPORT DETAILS

### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

#### 1R05 Fire Protection

This report documents the results of a Triennial Fire Protection Inspection (TFPI) at the Shearon Harris Nuclear Power Plant (HNP), Unit 1. The inspection was conducted in accordance with NRC Inspection Procedure (IP) 71111.05XT, "Fire Protection - NFPA 805 (Triennial)" dated August 1, 2011. Additionally, IP 71111.17, "Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications"- dated October 31, 2008, was used to review 14 engineering changes (EC). These ECs were deemed necessary to complete the transition to full compliance with 10 CFR 50.48(c) by December 31, 2010, in accordance with the transition license condition. The objective of the inspection was to review a minimum sample of two risk-significant Fire Areas (FAs) to verify implementation of the HNP Fire Protection Program (FPP). An additional objective was to verify site specific implementation of at least one B.5.b mitigating strategy as well as the storage, maintenance, and testing of B.5.b mitigating equipment.

Section 71111.05-05 of the IP specifies a minimum sample size of two FAs. The team chose four FAs based on available risk information as analyzed onsite by a senior reactor analyst from Region II, data obtained from in-plant walkdowns regarding potential ignition sources, location, and characteristics of combustibles, and location of equipment needed to achieve and maintain the reactor in a safe and stable condition. Other considerations for selecting the FAs were the relative complexity of the post-fire safe shutdown (SSD) procedures, information contained in FPP documents, and results of prior NRC TFPIs. In selecting the B.5.b mitigating strategy sample, the inspectors reviewed licensee submittal letters, safety evaluation reports, licensee commitments, B.5.b implementing procedures, and previous NRC inspection reports.

Detailed inspection of these four FAs fulfills the procedure completion criteria. The four areas chosen were:

- 1-A-SWGRB – Switchgear Room B in Reactor Auxiliary Building which is a performance based fire area with focus on fire scenarios involving the 480V Auxiliary Switchgear 1B1.
- 1-A-CSRB – Cable Spreading Room B, Reactor Auxiliary Building which is a performance based fire area with focus on fire scenarios involving the Auxiliary Transfer Panel SB.
- 1-A-BAL-C – Reactor Auxiliary Building Unit 1 – Analysis Area C which is a performance based fire area with focus on fire scenarios involving the 480V 1B21 motor control center (MCC).

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- 1-A-BAL-G – Reactor Auxiliary Building Unit 1 – Analysis Area G, which is a deterministic based fire area.

For each of the selected FAs, the inspection team evaluated the licensee’s FPP against the applicable NRC requirements. The specific documents reviewed by the team are listed in the Attachment.

.01 Protection of Safe Shutdown Capabilities

a. Inspection Scope

The team examined HNP fire response Abnormal Operating Procedures (AOPs) and compared them to the NFPA 805 Nuclear Safety Capability Assessment (NSCA) and Fire Safety Analysis (FSA), systems flow diagrams, and other design basis documents to determine if equipment required to achieve post-fire safe and stable plant conditions was properly identified and adequately protected from fire damage in accordance with the requirements of 10 CFR 50.48(c) and the HNP approved FPP. Cable routing information by FA was reviewed for a selected sample of SSD components to verify that either the associated cables would not be damaged for the selected FAs/fire scenarios or the licensee’s analysis determined that the fire damage would not prohibit achieving safe and stable plant conditions. For the one case where the licensee credited a recovery action during non-power operations to meet the nuclear safety performance criteria, the team reviewed the recovery action to verify that it was feasible. A list of SSD components examined for cable routing is included in the Attachment. The specific fire response AOPs reviewed is also listed in the Attachment.

The team reviewed applicable sections of the AOPs for the selected FAs and fire scenarios to verify that the shutdown methodology properly identified the components and systems necessary to achieve and maintain safe and stable plant conditions. The team performed an in-plant walk-through of procedure steps to ensure the implementation and human factors adequacy of the procedures. The team verified the licensee personnel credited for procedure implementation had procedures available, were trained on implementation, and were available in the event a fire occurred. The team also reviewed one operator recovery action and selected operator defense-in-depth actions to verify that the operators could reasonably be expected to perform the specific actions within the time required to maintain plant parameters within specified limits.

b. Findings

Inadequate Fire Response Procedure AOP-036.04

Introduction: The team identified a Green non-cited violation (NCV) of HNP Technical Specification 6.8.1.a. for inadequate guidance in fire response procedure AOP-036.04, “Fire Areas: 1-A-BAL-C, 1-A-BAL-D, 1-A-BAL-F, 1-G, FPYARD, Rev. 17.” Specifically, the procedure could not have been performed as written in that, AOP-036.04, Section 3.1, directed operators to implement a step in the procedure that did not exist. The licensee initiated nuclear condition report (NCR) 489092 to address this issue, and subsequently revised the procedure.



**Description:** Procedure AOP-036.04, Section 3.1, would have been used concurrently and in conjunction with emergency operating procedure (EOP), "EOP PATH-1" to achieve post-fire safe and stable plant conditions from the main control room (MCR) fire scenarios in Fire Area 1-A-BAL-C. The team walked down procedure AOP-036.04 with licensee operations personnel to assess the procedural guidance for post-fire safe and stable conditions. During review and walkdown of the procedure, the team noted that Section 3.1, Step 10.d (in the Response Not Obtained (RNO) column) directed operators to implement Step 10.f. However, there was no Step 10.f in Section 3.1 of AOP-036.04. The team also noted that Section 3.1 did not have a Step 10.e either. Therefore, the RNO column of Section 3.1, Step 10.d, could not have been performed as written due to inadequate procedural guidance. The team discussed this issue with HNP operations personnel and reviewed the guidance in EOP PATH-1, which would have been used concurrently with AOP-036.04. Based on the discussions and reviews, the team determined that the underlying intent of Step 10.d in AOP-036.04 was to ensure that reactor coolant level was maintained within the indicating range in the pressurizer. The team concluded that based on the EOP guidance and operator experience/training, it was likely the plant operators would have been able to determine pressurizer level and would have taken the appropriate actions required to ensure post-fire safe and stable plant conditions. The licensee initiated NCR 489092 to address this issue.

**Analysis:** The team determined that the inadequate fire response procedure guidance was a performance deficiency (PD). This finding was more than minor because it was associated with the procedure quality attribute of the mitigating systems cornerstone and it affected the cornerstone objective of protection against external events (i.e., fire). The team assessed this finding using IMC 0609, Appendix F, Fire Protection Significance Determination Process. The team assigned a low degradation rating to this finding because the AOP procedure deficiencies were compensated by available EOP guidance, operator experience/familiarity, and training. It was likely that plant operators would have been able to assess plant parameters and would have taken the appropriate actions required to ensure post-fire safe and stable plant conditions. Therefore, the team determined that this finding was of very low safety significance (Green). The cause of this finding was determined to have a cross cutting aspect in the Human Performance Area, Resources Component, because the licensee's validation and verification process did not ensure that procedure AOP-036.04 was adequate and accurate (H.2(c)).

**Enforcement:** The HNP Technical Specification 6.8.1.a. requires that written procedures shall be established, implemented, and maintained covering the activities recommended in Appendix A, of Regulatory Guide 1.33, Rev. 2, dated February 1978. Regulatory Guide 1.33, Appendix A, Section 6.v., requires procedures for combating emergencies such as plant fires. The licensee established procedure AOP-036.04, Fire Areas: 1-A-BAL-C, 1-A-BAL-D, 1-A-BAL-F, 1-G, FPYARD, Rev. 17, for combating plant fires.

Contrary to the above, on September 23, 2011, the team identified that the licensee failed to establish, implement, and maintain procedures for combating emergencies such as plant fires. Specifically, licensee procedure AOP-036.04 provided inadequate instructions for achieving post-fire safe and stable plant conditions for certain fire scenarios in FA 1-A-BAL-C. The licensee initiated NCR 489092 to address this issue in the corrective action program and subsequently revised the procedure. Because this finding was of very low safety significance (Green) and was entered into the licensee's corrective action program (NCR 489092), this finding is being treated as an NCV,

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consistent with Section 2.3.2, of the NRC Enforcement Policy. This finding is identified as NCV 05000400/2011011-01, Inadequate Procedure AOP-036.04 for Fire Area 1-A-BAL-C Post-Fire Safe Shutdown.

### Minor Performance Deficiencies

Inspection Manual Chapter (IMC) 0612 provides guidance and defines the content and format for inspection reports of power reactor inspections. Section 0612-11 of the IMC states in part that minor violations are not routinely documented in inspection reports. However, as stated in the NRC Enforcement Policy and the NRC Enforcement Manual, there may be exceptions. An issue of concern, regardless of whether it involves a violation of requirements, may be documented if related directly to an issue of agency-wide concern. Because this report documents the first NFPA 805 TFPI, issues of concern and minor violations are being presented for the benefit of all stakeholders.

In addition to the above Green NCV, the team identified three examples of minor PDs that were not subject to enforcement action in accordance with the NRC's Enforcement Policy. The licensee initiated NCRs to address these issues in the corrective action program.

- Fire response procedure AOP 36.05, Section 3.2, Fire Area 1-A-CSR, Step 34, credited instrument numbers for the wrong train of equipment. Specifically, the step to monitor residual heat removal (RHR) cool down locally at temperature indicator TI-5551B should have stated to monitor RHR cool down locally at TI-5551A. The licensee initiated NCR 486083 for this issue. This PD was determined to be minor because the procedure error was quickly recognized by the operator assisting with the procedure walkdown and the correct action was demonstrated during the walkdown.
- Fire response procedure AOP-36.08, Section 3.2, Fire Area 1-A-SWGRB, Step 9.b and Step 29 RNO step b. have incorrect Train designations. Specifically, the second bullet of Step 9.b referenced the Train A charging safety injection pump (CSIP) where it should have been the Train B CSIP. Step 29, RNO step b. referenced switchgear room A (SWGRA) to de-energize Train B equipment where it should have referenced SWGRB. This PD was determined to be minor because the procedure error was quickly recognized by the operator assisting with the walkdown and the correct action was demonstrated during the walkdown. The licensee initiated NCR 489589 for this issue.
- While performing a walkdown of the selected FAs to verify that the licensee had identified all credible ignition sources the team found several ignition sources that were not accounted for in the licensee's ignition source calculation. Three of the ignition sources were associated with ECs and were being tracked to be added to the calculation. However, one ignition source was not accounted for in the calculation. Missing an ignition source was a PD. However, this PD was considered minor because there were no target structures, systems, and components (SSCs) within the ignition source zone of influence. The licensee initiated NCR 486087 to enter this issue into the corrective action program (CAP). In addition, the team noted that bus ducts located in Switchgear Room B (as well as in other fire areas) were not counted as credible ignition sources.

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This issue was also identified by the NRC reviewers during their review of the licensee's NFPA 805 license amendment request. Progress Energy performed a sensitivity analysis to determine the risk impact of the bus ducts as ignition sources. As detailed in the HNP NFPA 805 safety evaluation report dated June 28, 2010, the result of the sensitivity analysis, which was reviewed by the NRC staff reviewers, was below the threshold for acceptance. The licensee is tracking this item as NCR 489655 to be incorporated into the base case at the next probabilistic risk assessment (PRA) update.

### Observation

- During the walkdown of FA 1-BAL-C, the team found one non-safety MCC with doors that could not be closed because bolts were missing. This was considered to be very important because one of the key assumptions in the licensee's fire PRA was that the MCCs were sealed and fires would not propagate outside of the MCC's cubicles. The licensee initiated work order 502904 to fix the doors on the MCC. Furthermore, the NRC reviewers questioned this assumption during the NFPA 805 licensing process. Progress Energy performed a sensitivity analysis to determine the impact of 10% of MCC fires propagating outside of the cubicles. This sensitivity analysis, which was reviewed by the NRC staff reviewers, showed that the increase in risk was below the threshold for acceptance, resolving the concern. After discussions with the inspection team, the licensee agreed to include the results of the sensitivity analysis at the next fire PRA scheduled update. The licensee initiated NCR 489655.

## .02 Passive Fire Protection

### a. Inspection Scope

The team conducted walkdown inspections and examined the material condition and as-built configuration of accessible passive fire barriers surrounding and within the FAs selected for review to evaluate the adequacy of the fire resistance in accordance with the associated NFPA 805 FSA calculations. Fire barriers in use included block walls, poured walls, ceilings, floors, mechanical and electrical penetration seals, doors, dampers, electrical raceway fire barrier systems (ERFBS) and safety system fire resistive cable. The team compared the as-built installed barrier configurations to the approved construction details, and supporting fire endurance test data, which established the ratings of the fire barriers. For example, fire doors and hatches were examined for attributes such as material condition, tightness, proper operation, Underwriter's Laboratories (UL) label on door, frame, and latch, method of attachment to the wall, etc. Construction detail drawings were reviewed as necessary. Other types of fire barriers were inspected in a similar manner. The team verified that the as-built configurations met the engineering design, standard industry practices, and were properly evaluated or qualified by appropriate fire endurance tests. The team also reviewed licensing bases documentation, such as 10 CFR 50.48(a), 10 CFR 50.48(c), the NRC NFPA 805 Safety Evaluation Report (SER), and a sample of licensee change evaluations for variances from deterministic requirements (VFDRs) of non-standard fire barrier configurations in FAs 1-A-SWGRB, 1-A-CSRFB, and 1-A-BAL-C, to verify that passive fire protection features met license commitments. In addition, a sample of completed surveillance and maintenance procedures for selected fire doors, fire dampers, and ERFBS were reviewed to ensure that these passive fire barriers were

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being properly inspected and maintained. The passive fire barriers included in the review are listed in the Attachment.

b. Findings

No findings were identified.

.03 Active Fire Protection

a. Inspection Scope

The team reviewed the licensee's conventional fire detection systems, automatic fire suppression systems, and manual fire fighting fire hose and standpipe systems protecting the FAs selected for review.

The team reviewed the adequacy of the design, installation, and operation of the conventional automatic detection and alarm system to actuate in the early stage of a fire. The review included walkdowns of the as-built configurations and an examination of the types of detectors, detector spacing, the licensee's technical evaluation of the detector locations, and the ceiling steel beam reinforcing plans to assess whether the areas were protected by fire detectors in accordance with the Code of Record requirements (NFPA 72E, 1978 Edition). The inspectors also reviewed the licensee's alarm response procedures, FSA calculations, NFPA 805 License Amendment Request (LAR) submittals and associated NRC NFPA 805 SER to verify that the conventional fire detection and alarm systems for the selected FAs were installed in accordance with the design and licensing bases of the plant.

The team inspected the material condition, operational configuration, design, and testing of the sprinkler system in the cable spreading room (FA 1-A-CSR). The inspection consisted of reviewing the system layout drawings against the field installation. During field walkdowns, piping configurations and the locations of sprinkler heads were observed to check for proper positions and obstructions. The team also reviewed the HNP NFPA 13 Code Compliance Evaluation to determine if there were any outstanding code deviations for the selected area. Fire Areas 1-A-SWGRB, 1-A-BAL-C and 1-A-BAL-G did not have fixed fire suppression systems.

The team also reviewed fire fighting pre-fire plans and fire response procedures for the selected FAs to determine if appropriate information was provided to fire brigade members to facilitate suppression of an exposure fire that could impact NSCA strategies. Additionally, the inspectors evaluated whether the fire response procedures and pre-plans for the selected FAs contained provisions for containment and monitoring of smoke and fire suppression agent runoff to minimize radioactive releases generated from the combustion of radioactive materials or from fire suppression activities. The team walked down the selected FAs to compare the associated pre-fire plans and drawings with as-built plant conditions and fire response procedures. This was done to verify that fire fighting pre-fire plan instructions and drawings were consistent with the fire protection features and potential fire conditions described in the NFPA 805 FSA calculations to demonstrate the achievement of the nuclear safety and radioactive release performance criteria of NFPA 805. The inspectors also evaluated whether the fire response procedures and pre-fire plans for the selected FAs could be implemented as intended. Additionally, fire brigade response time-to-drill scenarios that transpired since 2008 were reviewed to verify that fire brigade response time performance basis

monitoring criteria were met. During plant tours, the team observed placement of the fire hoses and extinguishers to verify they were not blocked and were consistent with the fire fighting pre-fire plans and FPP documents. Specific documents reviewed by the team are listed in the Attachment.

b. Findings and Observations

No findings were identified. However, the team observed that the licensee was calculating the probability of non-suppression (PNS) utilizing newly installed incipient detection systems. The risk reduction credited for use of this method of detection differed from the guidance in NUREG/CR-6850, Supplement 1. This issue was also noted by the NRC reviewers during their review of the licensee's NFPA 805 license amendment request. This guidance was not available at the time that HNP staff was evaluating PNS for fire scenario incorporating incipient detection. This guidance was still in the frequently asked questions (FAQ) process and was not finalized when HNP submitted their license amendment request. However, HNP staff performed a sensitivity analysis to determine the impact the incipient detection PNS guidance in NUREG/CR-6850, Supplement 1. The result of the sensitivity was below the threshold for acceptance. Therefore, the NRC reviewers determined that the licensee's approach was acceptable for transition. However, the licensee is required, as part of their license amendment, to utilize the revised methodology contained in NUREG/CR-6850, Supplement 1 prior to making changes (unless the change has no more than a minimal risk impact) to FAs with incipient detection.

.04 Protection From Damage From Fire Suppression Activities

a. Inspection Scope

The team walked down the selected FAs to evaluate whether the ability to achieve the nuclear safety performance criteria could be adversely affected due to damage from fire suppression activities or from the rupture, or inadvertent operation of, fire suppression systems. The team addressed the possibility that a fire in one FA could lead to the migration of smoke or hot gases to other plant areas. Airflow paths out of the selected FAs identified on heating ventilation and air conditioning drawings were reviewed to verify that inter-area migration of smoke or hot gases would not inhibit necessary local operator recovery actions required for the selected FAs. The team also evaluated whether the manual fire fighting activities could adversely affect the credited nuclear safety equipment and/or adversely affect the local operator recovery actions required for the selected FAs. Additionally, the team checked that fire fighting water would either be contained in the fire affected area or be safely drained off. This portion of the inspection was carried out through a combination of walkdowns, drawings, and records review. Documents reviewed by the team are listed in the Attachment.

b. Findings

No findings were identified.

.05 Shutdown from Primary Control Station

a. Inspection Scope

Methodology

For postulated fire scenarios in FAs 12-A-CR, 12-A-CRC1, and 12-A-HVIR, which may impair MCR functions, the licensee credited shutdown from primary control stations to achieve safe and stable plant conditions. This would involve transferring plant controls from the MCR to the auxiliary control panel (ACP). Electrical schematics were reviewed to verify that circuits for SSD equipment, which could be damaged due to fire, were isolated by disconnect switches and by swapping power supplies for selected MCCs. The team reviewed the ACP transfer switch testing methodology to assess the functionality of the isolation feature of the transfer switches. The team also reviewed the licensee's FPP as described in UFSAR Section 9.5.1, the NSCA, DSPs, piping and instrumentation drawings, electrical drawings, and other supporting documents. The reviews focused on ensuring that the required functions for post-fire SSD and the corresponding equipment necessary to perform those functions were included in the fire response AOPs. The review included assessing whether safe and stable plant conditions from the primary control stations outside the MCR could be implemented and that transfer of control from the MCR to the ACP could be accomplished in accordance with procedure AOP-004, "Remote Shutdown." This review also included verification that safe and stable conditions could be achieved and maintained from the primary control station both with and without the availability of offsite power.

b. Findings and Observations

No findings were identified. However, the team observed that the licensee did not ensure that all circuits had been electrically isolated from the ACP.

The licensee performed functional transfer verification to ensure the equipment could be controlled from the ACP, and verified control of the equipment was removed from the MCR by attempting to operate the equipment from the MCR. The inability to control equipment from the MCR provided indication that portions of the MCR circuit were isolated, but did not ensure all circuits had been electrically isolated from the ACP. The licensee demonstrated with a bounding analysis that the risk associated with not ensuring complete isolation of these circuits would be acceptably low. Therefore, no additional testing was required to ensure that all circuits would have been isolated from the MCR.

.06 Circuit Analyses

a. Inspection Scope

The team reviewed the NSCA, licensee circuit analysis documents, flow diagrams, and electrical schematics to verify that the licensee properly identified circuits that could impact the ability to achieve and maintain safe and stable conditions. The team verified, on a sample basis, that the licensee properly identified cables and equipment required to achieve and maintain safe and stable conditions, i.e. hot standby, for the selected fire scenarios in the selected fire areas. The team verified that cables associated with safe

shutdown-related equipment were protected from the adverse effects of fire damage or were analyzed to show that fire induced cable faults would not prevent shutdown to safe and stable conditions.

The team reviewed flow diagrams for safe shutdown systems to assess the licensee's review of potential flow diversions or maloperations that may impact nuclear safety performance criteria.

The team also reviewed, on a sample basis, coordination study documents for the 480V bus 1B1 and the 480V MCC 1B24 to ensure proper coordination existed between load and incoming supply breakers. The team also verified adequate margin was available for the Alternate Seal Injection diesel generator to supply the required loading.

For the sample of components selected, the team reviewed piping and instrumentation drawings, electrical schematics, and wiring diagrams to identify power, control, and instrumentation cables necessary to support safe shutdown equipment operation. In addition, the team reviewed cable routing information to verify that fire protection features were in place to satisfy the requirements specified in the fire protection license basis. Specific components reviewed by the team are listed in the Attachment.

b. Findings

No findings were identified.

.07 Communications

a. Inspection Scope

The team walked down sections of the emergency control station shutdown procedures to verify that portable radio communications and fixed emergency communication systems remained available, operable, and adequate for the performance of designated activities. The team verified, through inspection, the contents of designated emergency storage lockers. Additionally, the team verified the capability of the communication systems to support the operators in the conduct and coordination of their required actions. The team discussed system design, testing, and maintenance with engineering personnel.

The team reviewed the adequacy of the communication system to support plant personnel in the performance of alternative post-fire safe-shutdown functions and fire brigade duties. Selected fire brigade drill evaluation/critique reports were reviewed to assess proper operation and effectiveness of the fire brigade command post portable radio communications during fire drills and to identify any history of operational or performance problems with radio communications during fire drills. In addition, the team verified the radio battery usage ratings for the fire brigade radios stored and maintained on charging stations.

b. Findings

No findings were identified.

u.08 Emergency Lighting

a. Inspection Scope

The team reviewed the adequacy of the emergency lighting units (ELUs) used to support plant personnel during post-fire safe shutdown for the selected FAs. The team performed plant walkdowns and observed the placement and coverage area of fixed 8-hour battery pack emergency lights throughout the selected FAs to evaluate their adequacy for illuminating access and egress pathways and any equipment requiring local operation and/or instrumentation monitoring for post-fire SSD.

The team reviewed completed test records of ELU battery 8-hour capacity tests to ensure that they were sized, tested, and maintained consistent with vendor guidance, license requirements, and licensee commitments. The specific documents reviewed are listed in the Attachment.

The team verified that emergency exit lighting was provided for personnel evacuation pathways to the outside exits as identified in the NFPA 101, "Life Safety Code," and the Occupational Safety and Health Administration (OSHA) Part 1910, "Occupational Safety and Health Standards." This review also verified that backup ELUs were provided for the primary and secondary fire emergency equipment storage locker locations and dress-out areas in support of fire brigade operations should power fail during a fire emergency.

b. Findings

No findings were identified.

.09 Cold Shutdown Repairs

a. Inspection Scope

The nuclear safety goal is provided in NFPA 805 to establish reasonable assurance that a fire during any operational mode and plant configuration will not prevent the plant from achieving and maintaining the fuel in a safe and stable condition. The licensee defines safe and stable conditions as maintaining reactor coolant temperature at or below hot standby conditions, or fuel coolant temperature less than boiling. The licensee does not require transitioning to cold shutdown to achieve the safe and stable condition, and therefore does not require cold shutdown repairs to be implemented. The team verified that a fire in the selected FAs would not prevent a controlled cold shutdown to be achieved within the time frame specified by their design and licensing basis.

b. Findings

No findings were identified.



.10 Compensatory Measures

a. Inspection Scope

The team reviewed the administrative controls for out-of-service, degraded, and/or inoperable fire protection features (e.g., detection and suppression systems and equipment, passive fire barriers). The team reviewed the FPP calculation HNP-M/BMRK-0018, "Risk Informed Compensatory Actions for Fire Protection System Impairments," Revision 0, for selected fire doors, fire dampers, penetration seals, ERFBS, and sprinkler systems within the selected FAs. The compensatory measures that had been established in these areas were compared to those specified in the FPP for the applicable fire protection feature. The team verified that the risk associated with removing the fire protection feature from service was properly assessed and the compensatory measures were implemented in accordance with the approved FPP.

b. Findings

No findings were identified.

.11 Control of Combustibles and Ignition Sources

a. Inspection Scope

The inspectors reviewed the administrative control of combustible materials and ignition sources to verify that the FPP performance requirements of NFPA 805 Chapter 3 were satisfied. Plant administrative procedures were reviewed to determine if adequate controls were in place to control the potential ignition sources of welding and grinding and the handling of transient combustibles in the plant. The inspectors walked down numerous areas in the plant, including the selected FAs, for control of combustible materials, storage of in-plant materials, transient combustibles, and general housekeeping. The inspectors verified that containers with combustibles were UL or Factory Mutual listed.

b. Findings

No findings were identified.

.12 Radiological Release

a. Inspection Scope

As described in Section 1R05.b.03, the team verified that the licensee analysis of radioactive release had been examined on a fire area basis in accordance with NFPA 805, Section 2.2.4.

b. Findings

No findings were identified.

.13 Non Power Operations

a. Inspection Scope

One of the requirements in NFPA 805 is for licensees to implement FPP controls during non-power operational modes. Although HNP did not enter an outage during the inspection period, the team reviewed plant calculations, procedures, and analyses that defined the key safety functions required to maintain the plant in a safe and stable condition during non-power operational modes. The team also verified that where the licensee had identified specific areas or “pinch points” where one or more key safety functions could be lost, additional actions had been established which would be taken during high-risk evolutions in the locations of the “pinch points” where key safety functions could be lost.

b. Findings and Observations

No findings were identified. However, the team identified the following minor PD not subject to enforcement action in accordance with the NRC's Enforcement Policy:

- The team reviewed several procedures that were revised to incorporate actions in response to the licensee's non-power operations evaluation. AOP-20, AOP-36.04, AOP-36.05, and AOP-36.08 all have a common step to locally control RHR temperature and flow if indication is lost in the MCR. The step directs the operator to control RHR flow rate between 2000 and 3750 gallons per minute (gpm) for the applicable Train while maintaining desired RCS temperature. The note just before the step states that RHR pump flow can be monitored locally at flow indicators FIS-602A and FIS-602B. While performing a walkdown of the procedure steps, the team found that these flow indicators were not sufficient for ensuring that the desired RHR flow could be maintained in that these FIS-602A and FIS-602B flow indicators had a range of 0 – 1500gpm. The failure to direct the operator to an instrument with the appropriate range is a PD. This PD was determined to be minor because the underlying intent of the step was to maintain the desired RCS temperature, which could be adequately monitored locally. The licensee initiated NCRs 489107 and 489387 to resolve this issue and implemented hourly fire watches as compensatory measures in accordance with the FPP.

.14 Monitoring Program

a. Inspection Scope

The team reviewed procedure FIR-NGGC-0130, “NFPA 805 Monitoring,” to verify that a monitoring program was established to ensure that the availability and reliability of the fire protection systems and features credited in the performance-based analyses are maintained and to assess the performance of the FPP in meeting the performance criteria in accordance with NFPA 805. The licensee further divided the fire protection systems into a set of pseudo-systems and established requirements to monitor the effectiveness of the fire protection systems and features. The inspectors reviewed several pseudo-system calculations to verify that the monitoring program ensures that the assumptions in the engineering analysis remain valid.

The team also verified that the monitoring program instituted appropriate corrective actions to return availability, reliability, and performance of systems that fall outside of established levels.

b. Findings and Observations

No findings were identified. However, while reviewing the monitoring criteria established for the incipient detection system, the team observed that the licensee's equipment availability threshold was calculated using a 3-year rolling period. Although this criterion appeared to be acceptable, there was not enough data to calculate the threshold because the system has only been in service for approximately one year. The licensee initiated NCR 489209 to temporarily consider decreasing the rolling average calculation and use the current, available information until they have three years of data. The team also found, that the functional failure criterion for the incipient detection system was defined as the failure of the detector to provide the required alarm. Because the system has several alarm set points, the same NCR will address a better definition for "alarm."

.15 Plant Change Evaluation

a. Inspection Scope

The inspectors requested any plant change evaluations performed since HNP transitioned to the NFPA 805 FPP to confirm that the licensee had appropriately considered the conditions under which changes to the facility may be made without prior NRC approval. The licensee informed the team that no modifications had been performed that included a "Potentially Greater than Minimal Impact" requiring PRA analysis. This was later verified by the inspectors through the review of several changes screened as "minimal impact."

b. Findings

No findings were identified.

.16 B.5.b Mitigating Strategy

a. Inspection Scope

The team reviewed, on a sample basis, the licensee's steam generator depressurization and makeup mitigation measures for large fires and explosions to verify that the measures were feasible, personnel were trained to implement the strategies, and equipment was properly staged and maintained. The team reviewed inventory and maintenance records of required equipment. Through discussions with plant staff, review of documentation, and plant walk-downs, the team verified the engineering basis to establish reasonable assurance that the makeup capacity could be provided using the specified equipment and water sources. The team reviewed the licensee's capability to provide a reliable and available water source and the ability to provide the minimum fuel supply. The team performed a walkdown of the storage and staging areas for the B.5.b equipment to verify that equipment identified for use in the current procedures was available, calibrated, and maintained. In the presence of licensee staff, the team conducted an independent inventory of required equipment and a visual inspection of the dedicated credited power source and water source. The team reviewed training

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records to verify that operations and security personnel training with the strategy objectives and implementing guidelines were accomplished according to the established guidelines.

b. Findings

No findings were identified.

1R17 Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications

a. Inspection Scope

The team reviewed the plant modifications, as described in the Shearon Harris NFWA 805 Safety Evaluation, dated June 28, 2010, to verify that they were completed in order for HNP to finalize their transition to NFWA 805. The following modifications were listed in the Safety Evaluation and reviewed by the team:

- Engineering Change(EC) #62343, Fire Protection for Steam Generator PORV-C Cables for Auxiliary Control Panel Operation (ACP) - NFWA 805
- EC# 62820, Upgrade Reliability of Operator SSD Communications at the ACP for a Postulated Fire in the MCR
- EC# 68645, Protect 1AF-74 From Fire Damage for a Postulated Fire in Fire Zone 1-A-SWGRB ( B Switchgear Room)
- EC# 68646, Add Thermal Shields over Bus 1B-SB, 1B-NNS, 1E-NNS, 1B1-NNS in SWGR room 1B
- EC# 68648, Protect Cable 10988B-SR4 to Prevent Spurious AFW Isolation to Steam Generators
- EC# 68658, Prevent Spurious Opening of Either 1CC-147 or 1CC-167 During a Postulated Fire in 12-A-CR
- EC# 68769, HNP Evaluation/Modification of SSD MOVs Subject to IN 92-18
- EC# 69501, Design and Installation of Incipient Fire Detection For NFWA 805
- EC# 69764, Upgrade Existing Credited Hemyc Wrap Applications
- EC# 69765, Upgrade Existing Credited MT Wrap Applications
- EC# 70027, Add 480 VAC Power Outlets to Supply Compensatory Fans for Cooling at Charging Safety Injection Pump (CSIP) and B RHR Pump Rooms
- EC# 70350, Alternate Seal Injection and Back-Up Diesel Generator System
- EC#70895, Protect TD AFW MOVs Free from Fire Damage in 12-A-CRC-1
- EC# 71147, Prevent Multiple Spurious Operation Due to Fire in MCC Vertical Stacks-NFWA 805

The team reviewed procedures, engineering calculations, modification design and implementation packages, work orders, site drawings, corrective action documents, and supporting analysis. The team review verified that changes resulting from the modifications were adequately incorporated in licensing and design basis documents and associated plant procedures. The team performed plant walkdowns of the modifications and selected aspects were discussed with engineering personnel.

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b. Findings and Observations

No findings of significance were identified. However, the team identified the following examples of minor PDs not subject to enforcement action in accordance with the NRC's Enforcement Policy:

- The team reviewed training and qualification for instrumentation and controls technicians that performed weekly and quarterly maintenance on the incipient fire detection system. As described in NFPA Standard 72 (2007 edition) Chapter 10.2.2.5, maintenance and servicing personnel of the fire detection system shall be factory trained and certified to service the specific equipment in the building. The team found that several of the technicians did not have a valid certificate showing they were qualified to maintain the system. Upon further investigation by the licensee, the team was informed the employees were factory trained but did not receive the required certification from the vendor. The team confirmed that the licensee contacted the vendor and the vendor would send the certifications. The failure to have adequate documentation that technicians were certified to service the incipient detection system was a PD. The licensee entered the issue into the corrective action program under NCR 489038, and maintenance on the system was re-performed by employees with valid certifications.
- Modification Package EC 6974, which was issued to upgrade Hemyc fire wrap installations in the plant, specified that a termination collar was to be installed on the Hemyc wrap for specific conduits at the walls separating different FAs. While performing a walkdown inspection, the team noted that the Hemyc termination collar had not been installed for conduit 10310A between FAs 1-A-CSR B and 1-A-CSRA. The licensee reviewed the nuclear capability assessment report and the fire PRA and determined that the Hemyc wrap for this conduit was not credited. The team determined that the absence of the collar was properly evaluated in calculation HNP-M/MECH-1103, "Hemyc Electrical Raceway Fire Barrier System Rating Calculation"; however, the EC had not been revised to reflect this fact. NCR 485422 was initiated for this issue.

#### 4. OTHER ACTIVITIES

##### 4OA2 Identification and Resolution of Problems

###### a. Inspection Scope

The team reviewed recent independent licensee self-assessments for thoroughness, completeness, and conformance to requirements. The team reviewed other corrective action program documents, including completed corrective actions documented in selected NCRs, and operating experience program documents to verify that industry-identified fire protection problems potentially or actually affecting the plant were appropriately entered into and resolved by the licensee's CAP. The team included NRC Regulatory Issue Summaries, Information Notices, and vendor information letters in their review of operating experience program effectiveness. The team reviewed the

timeliness, proposed corrective action, and other attributes associated with a sample of NCRs. The NCRs reviewed are listed in the Attachment.

b. Findings

No findings were identified.

4OA5 Other Activities

.01 (Closed) Licensee Event Report (LER) 05000400/2002-004-09: Unanalyzed Condition Due to Inadequate Separation of Associated Circuits

(Closed) Licensee Event Report (LER) 05000400/2004-004-00: Unanalyzed Condition Due to Inadequate Separation of Associated Circuits

(Closed) Unresolved Item (URI) 05000400/2005007-01, Fire Response Procedures May Not Be Adequate To Prevent RCP Seal Failure and Subsequent Seal Loss of Coolant Accident for a Fire in Certain Fire Areas

a. Inspection Scope

Starting in December 2002, and continuing over the course of approximately 2 years, the licensee submitted a series of LERs documenting the discovery of unanalyzed conditions related to their FPP. The conditions discovered included failure to protect redundant trains of SSD equipment, failure to ensure the capability for alternative shutdown for fires in rooms where SSD could not be achieved from the MCR, and failure to provide adequate procedural guidance to ensure SSD. Additionally, during a 2005 TFPI, inspectors discovered another example of inadequate procedural guidance for post-fire SSD and opened a separate URI for the issue.

In 2005, the licensee committed to transition their HNP fire protection licensing basis to comply with 10 CFR 50.48(c), "National Fire Protection Association Standard NFPA 805." During the transition period, these LERs and URI remained open while inspectors monitored the transition process. The licensee has completed the transition of its FPP to meet the requirements stated in 10 CFR 50.48(c). The commission's approval of this licensing basis change is documented in a safety evaluation report dated June 28, 2010.

In closing these open items, which describe noncompliances with the licensee's previous FPP licensing basis, the inspectors performed a detailed review of information contained in, and associated with the LERs and URI. The inspectors also assessed the adequacy of the licensee's corrective actions.

b. Findings

Problem Associated with the Failure to Implement Requirements and Standards of the Fire Protection Program

Introduction. The inspectors determined that the two LERs (licensee identified) and one URI (NRC identified) involved multiple, closely related issues of concern associated with implementation of the FPP as described in detail below. In accordance with Section 2.13.8 of the NRC Enforcement Manual, the NRC evaluated these issues and

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determined they would be treated as a group of related programmatic noncompliances associated with the licensee's implementation of the requirements and standards of Harris Operating License Condition 2.F, "Fire Protection Program."

The licensee has completed the transition of its fire protection program, to meet the requirements stated in 10 CFR 50.48(c), "National Fire Protection Association Standard NFPA 805." The commission's approval of this licensing basis change is documented in a safety evaluation report dated June 28, 2010. As part of this transition, the licensee completed several modifications, listed in Section 1R17 of this report, that have resulted in a significant decrease in risk. During this TFPI, inspectors reviewed these and other modifications, and concluded that the transition to NFPA 805 adequately addressed the noncompliances, associated with the previous FPP, described below.

#### Issues associated with the problem

#### 1. Noncompliance for Failure to Protect Redundant Trains of Safe Shutdown Equipment

Introduction. The licensee identified a noncompliance with Harris Operating License Condition 2.F, "Fire Protection Program," for the failure to protect redundant trains of SSCs, located in the same FA, needed to achieve post-fire SSD. This noncompliance affected redundant SSD trains located in multiple FAs. Specifically, the licensee failed to protect the SSCs by one of the methods specified in "Fire Protection Evaluation and Comparison to NUREG-0800, BTP, CMEB 9.5-1," Section C.5.b (2), which was incorporated, by reference, into the licensee's FPP.

Description. On February 18, 2003, the licensee submitted LER 2002-004-00, which described the lack of separation of redundant trains of SSCs credited by the SSA for achieving post-fire SSD. Over the course of approximately 2 years, the licensee submitted multiple revisions to the original LER, detailing additional instances of SSCs, credited by the SSA, that were not protected by one of the methods specified in BTP CMEB 9.5-1 Section C.5.b(2). These protection methods included the use of spatial separation, passive fire barriers, fire detection, and automatic fire suppression. The licensee also submitted LER 2004-004-00, which details an additional example of inadequate separation of associated circuits. The following FAs were affected:

- 1-A-BAL-A - Reactor Auxiliary Building
- 1-A-BAL-B - Reactor Auxiliary Building
- 1-A-BAL-C - Reactor Auxiliary Building
- 12-A-BAL - Reactor Auxiliary Building Balance
- 1-A-EPA - Electrical Penetration Area A
- 1-A-EPB - Electrical Penetration Area B
- 1-A-CSRA - Cable Spreading Room A
- 1-A-CSR B - Cable Spreading Room B
- 1-A-SWGRA - Switchgear Room A
- 1-A-SWGRB - Switchgear Room B
- 1-A-ACP - Auxiliary Control Panel Room
- 1-C - Containment Building

The licensee determined that fires in certain areas could potentially lead to conditions that adversely impact the ability to achieve and maintain SSD, due to the lack of

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separation of components and associated circuits. These conditions include loss of charging, loss of reactor coolant pump (RCP) seal cooling, and loss of auxiliary feedwater (AFW) flow to steam generators (SGs). The licensee determined that these conditions were caused by an inadequate original SSA and failure to issue a drawing change during the plant's construction phase that would have specified the use of fire barrier material to protect certain cables. Upon discovery, the licensee implemented compensatory measures, including de-energizing certain valves to prevent spurious mal-operation of components, and posting roving fire watches in FAs of concern.

2. Noncompliance for Failure to Provide Alternative Shutdown Capability for Certain Fire Areas

Introduction. The licensee identified a noncompliance with Harris Operating License Condition 2.F, "Fire Protection Program," for the failure to provide alternative shutdown capability for fires in certain areas where protection of SSCs did not satisfy the guidelines of "Fire Protection Evaluation and Comparison to NUREG-0800, BTP, CMEB 9.5-1," Sections C.5.b(1) and C.5.b(2). This document was incorporated, by reference, into the licensee's FPP. Specifically, the licensee failed to consider the possibility of occurrence of certain fire-induced hot shorts that could adversely impact the ability to achieve and maintain SSD.

Description. On February 18, 2003, the licensee submitted LER 2002-004-00, which described the lack of separation of redundant trains of SSCs credited by the SSA for achieving post-fire SSD. On February 13, 2004, the licensee discovered additional FAs affected by this condition and subsequently issued a revision to the LER. These areas included FA 12-A-CR (Main Control Room) & FA 12-A-CRC1 (Control Room Complex). Per the licensee's analyses, SSD for fires in these areas would be achieved by alternative shutdown methods.

The licensee discovered that cables for two volume control tank (VCT) outlet motor operated valves (MOVs) (1CS-165 & 1CS-166) were not protected from fire-induced spurious actuation. These valves were required to remain open to provide CSIP suction from the VCT for a postulated fire in the areas affected. A fire in FA 12-A-CR or FA 12-A-CRC1 could result in spurious closure of one of the VCT outlet valves. Closure of one of these valves would cause a loss of suction flow to all 3 CSIPs. This scenario could result in subsequent damage to the running CSIP, and unavailability of charging flow and RCP seal cooling, credited in the SSA for achieving and maintaining SSD.

Additionally, the licensee discovered that cables for two containment spray MOVs (1CT-102 & 1CT-105) were not protected from fire-induced spurious actuation. These valves are required to remain closed to prevent transfer of inventory from the refueling water storage tank (RWST) to the containment recirculation sump. The RWST is the suction source credited by the SSA to provide makeup inventory to the RCS. A fire in FA 12-A-CR or FA 12-A-CRC1 could result in inadvertently transferring inventory from the RWST to the containment recirculation sump, making the credited suction source unavailable to provide inventory to the RCS. The licensee determined that these conditions were caused by an inadequate original SSA. Upon discovery, the licensee implemented compensatory measures, including posting roving fire watches in FAs of concern, and committed to restoring compliance by implementing design changes.



3. Noncompliance for Providing Inadequate Procedural Guidance for Post-Fire Safe Shutdown

Introduction. The inspectors identified a noncompliance with 10 CFR 50 Appendix B, Criterion V for the licensee's failure to provide adequate procedural guidance in post-fire SSD procedure AOP-036, "Safe Shutdown Following a Fire." Specifically, AOP-036 did not include guidance from Westinghouse regarding time limitations for restoring cooling to the RCP seals. Additionally, AOP-036 also directed operators to perform actions that may not have been feasible, due to the presence of smoke, under certain conditions.

Description. In 2005, inspectors identified a condition where the SSA credits a potentially non-feasible operator manual action, which could adversely affect the ability to achieve and maintain SSD. This issue was documented in TFPI inspection report 05000400/2005007, and was identified as URI 2005-007-01. Procedure AOP-036, "Safe Shutdown Following a Fire," would have been used by operators to safely shutdown the unit from the MCR in the event of a significant fire in certain FAs. Procedure AOP-036 included local operator actions to restore component cooling water (CCW) to the RCP thermal barrier cooler if fires in certain areas resulted in the loss of all cooling to the RCP seals. Inspectors noted that the licensee had identified eight FAs where RCP seal cooling could be lost due to a significant fire in the applicable FA. Westinghouse technical bulletin TB-04-22, dated 11/17/2004 and 8/9/2005, stated that cooling to the RCP seals should be restored within 13 minutes in the event of a loss of all RCP seal cooling. The Westinghouse guidance further stated that RCP seal cooling should not be restored if restoration would take more than 13 minutes. Restoration of seal cooling after 13 minutes could result in cold thermal shock to the RCP seals, causing increased seal leakage leading to a seal loss-of-coolant accident (LOCA), or water hammer that could compromise the integrity of the CCW system.

Inspectors noted that AOP-036 did not include procedural guidance to alert operators about the Westinghouse time constraints for restoring cooling to the RCP seals contained in the Westinghouse technical manual. The licensee performed a Manual Action Feasibility Study to validate the operator manual actions incorporated into the SSD AOPs. Based on this study, the licensee found that, for a fire in FA 1-A-BAL-B (B2), the time to restore RCP seal cooling was 17 minutes and 39 seconds. Similarly, the study found that, for a fire in FA 1-A-CSR, the time to restore RCP seal cooling was 18 minutes and 30 seconds.

Additionally, on September 20, 2005, the licensee submitted a revision to LER 2002-004-00, which described the discovery of a condition where the SSA credits a potentially non-feasible operator manual action. For a fire in FA 1-A-BAL-A (236' elevation) that disables control of valve 1CS-291 from the MCR due to spurious actuation, AOP-036 directs operators to manually open the valve. Valve 1CS-291 provides suction from the RWST to the CSIP as well as support for normal charging operation for RCS inventory control. Access to manually operate valve 1CS-291 may not be feasible due to the presence of postulated smoke, under certain conditions. Not performing this operator manual action, when needed, could have adversely impacted the ability to achieve and maintain SSD.

The licensee determined that these conditions were caused by an inadequate original SSA. The licensee also determined that the appropriate interim compensatory measure,

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in accordance with their FPP, was to post roving fire watches in the affected areas. These fire watches had already been previously posted, as described above.

### Analysis of the Problem

Failure to adequately implement the requirements contained in Harris License Condition 2.F, "Fire Protection Program," was a PD. This finding is more than minor because it is associated with the Reactor Safety Mitigating System Cornerstone attribute of protection against external events (i.e. fire) and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

The inspectors considered the use of IMC 0609, Appendix F, "Fire Protection Significance Determination Process" to evaluate the significance of this problem. Some assessment utilizing Appendix F was initially conducted; however, because detailed modeling for each applicable fire scenario would be exceedingly difficult and time consuming, the decision was made to utilize IMC 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria" in order to provide reasonable estimates of the finding significance within the established SDP timeliness goal of 90 days. Additionally, a limited bounding analysis was conducted to aid in determining the risk of this problem. The inspectors utilized the insights gained from the limited bounding analysis and the following qualitative factors to determine the risk of this problem:

- The limited bounding analysis grouped several PDs (regardless of root causes) by fire areas to estimate the risk. Therefore, this bounding analysis did not constitute an SDP for specific PDs. Per IMC 0609, Appendix A, if the concurrent multiple equipment or functional degradations resulted from a common cause, then a single inspection finding is written and assessed.
- The limited bounding analysis did not take into account the fact that the performance deficiencies accounted for did not exist at the same time. The limited bounding analysis assumed that the performance deficiencies existed at the same time, rather than determining individual exposure periods as would normally be done per IMC 0609, Appendix A. Several performance deficiencies were corrected by the licensee throughout the years.

Considering the qualitative and quantitative factors described above, the significance of this finding was determined to be less than Red. The team determined that this finding did not present an immediate safety concern because in transitioning its FPP licensing basis to 10 CFR 50.48(c), "National Fire Protection Association Standard NFPA 805," the licensee addressed all noncompliances associated with this Problem.

The inspectors determined that these noncompliances did not have a crosscutting aspect because they did not represent current licensee performance.

### Enforcement of the Problem

Shearon Harris License Condition 2.F, "Fire Protection Program" states, in part, that Carolina Power & Light Company shall implement and maintain in effect all provisions of

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the approved fire protection program as described in the Final Safety Analysis Report (FSAR) for the facility as amended.

- Section 9.5.1, “Fire Protection System,” of the FSAR incorporates, by reference, “Fire Protection Evaluation and Comparison to NUREG-0800, BTP CMEB 9.5-1,” Revision 3, dated May 7, 1986.
  - Section C.5.b (2) of “Fire Protection Evaluation and Comparison to NUREG-0800, BTP CMEB 9.5-1” requires one train of systems necessary to achieve and maintain hot standby conditions from either the control room or emergency control station(s) be free of fire damage by providing one of the means described in Section C.5.b (2) (i.e., use of spatial separation, passive fire barriers, and fire detection and an automatic fire suppression system).
  - Section C.5.b (3), of “Fire Protection Evaluation and Comparison to NUREG-0800, BTP CMEB 9.5-1” requires that alternative or dedicated shutdown capability be provided where the guidelines of Section C.5.b (1) and C.5.b (2) cannot be met.
- Section 9.5.1.5.4, “Quality Assurance Program,” of the FSAR states that the fire protection quality assurance program elements are included in Section 17.3 of the FSAR. Section 17.3.1.1, “Methodology,” of the FSAR states, in part, that the HNP quality assurance program prescribes measures for the control and accomplishment of activities for the operation of safety related and fire protection SSCs. Section 17.3.1.1 also commits to the requirements of 10 CFR 50, Appendix B. 10 CFR 50 Appendix B, Criterion V, “Instructions, Procedures, and Drawings”, which states, in part, that activities affecting quality shall be prescribed by documented procedures of a type appropriate to the circumstances.

Contrary to the above, the licensee failed to meet the requirements of its documented fire protection program, in that:

- The licensee failed to protect redundant systems necessary to achieve and/or maintain hot shutdown conditions from the MCR or emergency control station(s) from fire damage by one of the means described in Section C.5.b(2) of “Fire Protection Evaluation and Comparison to NUREG-0800, BTP CMEB 9.5-1.”
- The licensee failed to ensure alternative shutdown capability was available for two fire areas where the guidelines for ensuring one redundant train for safe shutdown remain free of fire damage, detailed in Section C.5.b (1) and C.5.b (2) of “Fire Protection Evaluation and Comparison to NUREG-0800, BTP CMEB 9.5-1” could not be met.
- The licensee failed to provide adequate procedural guidance, in that the licensee’s fire safe shutdown procedure failed to incorporate instructions to alert operators concerning time constraints for restoring cooling to the RCP seals.

Additionally, the licensee's fire safe shutdown procedure included steps that were not appropriate to the circumstances in that a required procedural step may not have been feasible due to the presence of postulated smoke, under certain conditions.

Because this issue relates to fire protection, and the associated noncompliances were resolved by compliance with 10 CFR 50.48(c), the NRC is exercising enforcement and reactor oversight process discretion for this issue in accordance with the NRC Enforcement Policy, Section 9.1, "Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48)" and Inspection Manual Chapter 0305. Specifically, the licensee entered the noncompliances into their corrective action program and implemented appropriate compensatory measures. The noncompliances were not associated with a finding of high safety significance (Red), the noncompliances were not willful, and the licensee submitted a letter of intent stating its intention to transition to 10 CFR 50.48(c) by December 31, 2005.

LER 05000400/2002-004-09, "Unanalyzed Condition Due to Inadequate Separation of Associated Circuits;" LER 05000400/2004-004-00, "Unanalyzed Condition Due to Inadequate Separation of Associated Circuits;" and URI 05000400/2005007-01, "Fire Response Procedures May Not Be Adequate To Prevent RCP Seal Failure and Subsequent Seal Loss of Coolant Accident For a Fire in Certain Fire Areas," are closed.

#### 40A6 Meetings, Including Exit

On September 23, 2011, the lead inspector presented the inspection results to W. Jefferson and other members of his staff. The licensee acknowledged the findings. Proprietary information is not included in this report. On December 8, 2011, the lead inspector conducted a final exit meeting with Mr. Corlett and other members of the licensee's staff.

ATTACHMENT: SUPPLEMENTAL INFORMATION

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## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee personnel

J. MacIntyre, Fire protection Program Manager  
J. DeJoseph, Fire Protection System Engineer  
J. Nobles, Fire Protection Coordinator  
R. Rhodes, Safe Shutdown Program Manager  
R. Dukes, Safe Shutdown Engineer  
J. Dorrhy, Sr. Licensing Specialist  
D. Corlett, Licensing Supervisor  
D. Miskewicz, PSA Principal Engineer  
R. Davis, PSA Senior Engineer  
J. Ertman, Fleet Fire Protection Supervisor  
A. Holder, Sr. Fire Protection Engineer  
V. D'Souza, Fleet Sr. Fire Protection Engineer  
F. Womack, Operations Manager  
E. Kapapoulos, Plant Manager  
W. Jefferson, Site Vice President

#### NRC personnel

P. Lessard, Resident Inspector  
J. Austin, Senior Resident Inspector  
A. Klein, Chief, Fire Protection Branch, NRR  
R. Nease, Chief, Engineering Branch 2, Division of Reactor Safety, Region II

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

None

### Opened and Closed

05000400/2011011-01	NCV	Inadequate Procedure AOP-036.04 for Fire Area 1-A-BAL-C Post-Fire Safe Shutdown (Section 1R05.01.b)
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### Closed

05000400/2002-004-09	LER	Unanalyzed Condition Due to Inadequate Separation of Associated Circuits (Section 4OA5)
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05000400/2004-004-00	LER	Unanalyzed Condition Due to Inadequate Separation of Associated Circuits (Section 4OA5)
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05000400/2005007-01	URI	Fire Response Procedures May Not Be Adequate To Prevent RCP Seal Failure and Subsequent Seal Loss of Coolant Accident for a Fire in Certain Fire Areas (Section 4OA5)
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### Discussed

None

## LIST OF DOCUMENTS REVIEWED

### **Section 1R05.03.a: List of Fire Barrier Features Inspected in Relation to Safe Shutdown Separation Requirements**

<u>Fire Barriers Floors/Walls/Ceiling Identification</u>	<u>Description</u>
Concrete Wall and Ceiling	FA 1-A-BAL-G
<u>Fire Damper Identification</u>	<u>Description</u>
AC-FDAS 11-1	FA 1-A-SWGRB
AC-FDAS 13-1	FA 1-A-CSRB
AV-FDAS 91-1	FA 1-A-BAL-G
<u>Fire Door Identification</u>	<u>Description</u>
1FP-DO584	FA 1-A-BAL-G
1FP-DO241	FA 1-A-SWGRB
1FP-DO275	FA 1-A-CSRB
<u>Fire Barrier Penetration Seal Identification</u>	<u>Description</u>
E3011	FA 1-A-BAL-G
E655	FA 1-A-BAL-G
<u>Electrical Raceway Fire Barrier System Identification</u>	<u>Description</u>
HEMYC™ and MT™ ERFBS fire barriers	FA 1-A-CSRB
	FA 1-A-SWGRB
Meggitt™ Fire Resistive Electrical Cables	FA 1-A-4-COME

**Section 1R05.06.a: List of Safe Shutdown Component Inspected**

<u>Valves</u>	<u>Description</u>
1AF-49	Motor Supplied Auxiliary Feedwater to SG A Flow Control Valve
1AF-55 (cable routing only)	Motor Supplied Auxiliary Feedwater to SG A Isolation Valve
1AF-149	Auxiliary Feedwater to SG C Isolation Valve
1CC-207	CCW to RCP Supply Isolation Valve
1CC-208	CCW to RCP Seals & Motor Coolers Inlet Isolation valve
1CC-249	CCW Return Isolation from RCP Thermal Barriers Inboard valve
1CC-251	CCW Return Isolation Valve from RCP Thermal Barrier Outboard valve
1CC-252	RCP Thermal Barrier Flow Control Valve
1CS-235	Charging Line Isolation Valve Motor Operator
1CS-238	Normal Charging Downstream Isolation Valve
1RC-114	Pressurizer PORV
1SW-275	ESW Return Header A to NSW
1SW-270 (cable routing only)	ESW Header A Return to Aux Reservoir
<u>Instrumentation</u>	<u>Description</u>
PT-951	Containment Pressure Transmitter



**Drawings**

1364-090055 S01, Sheet 1, Automatic Sprinkler Corporation of America, RAB Cable Spreading Room B, Zone 1A-1-286, Revision 6

1364-090055 S04, Fire Protection Sprinkler Piping, RAB Cable Spreading Room "B", Revision 3

2166-S-2700, Reactor Auxiliary Building Fire Rated Cable Routing, Elevation 236' Unit 1

2166-S-2701, Reactor Auxiliary Building Fire Rated Cable Routing, Elevation 261' Unit 1

2166-SK-E-542S15, Reactor Auxiliary Building Safe Shutdown Analysis in Case of Fire, Elevation 261' Sheet 4 Unit 1

2166-SK-E-542S18B, Reactor Auxiliary Building Safe Shutdown Analysis in Case of Fire, Elevation 286' Sheet 3B Unit 1

2168-G-0506 S01, HVAC RAB Unit 1, EL. 286.00, Revision 14

2168-G-0508 S01, HVAC RAB Unit 1, EL. 286.00, Switchgear Equip. Area, Revision 9

2168-G-0806 S01, HVAC RAB Unit 1, EL. 286.00, Revision 10

6-SK-E-0542 S08, Reactor Auxiliary Building Safe Shutdown Analysis in Case of Fire, Elevation 236' Unit 1

8-G-0033, Frame Detail E, Fire Door 1FP-D0584 Installation, RAB El. 236', 1C-SAB Pump Transfer Switch Room, Revision SO6

CAR 2166 B-041 Sh 0201, Power Distribution & Motor Data 480V MCC 1D23, Rev 0

CAR 2166 B-401 Sh 0046, Power Distribution & Motor Data 6900V Emergency Bus 1B-SB, Rev 14

CAR 2166 B-401 Sh 0186S01, Power Distribution & Motor Data 480V MCC 1B24, Rev 18

CAR 2166 B-401 Sh 0186S02, Power Distribution & Motor Data 480V MCC 1B24, Rev 16

CAR 2166 B-401 Sh 130, Power Distribution & Motor Data 480V Emergency Bus 1B1, Rev 13

CAR 2166 B-401 Sh 1479, Control power Distribution Transfer Panels, Rev 8

CAR 2166 B-401 Sh 1481, Control Power Distribution ARP-19A(SA) & 19B(SB), Rev 12

CAR 2166 B-401 Sh 149, Pressurizer Pressure Control Instrumentation, Rev 13

CAR 2166 B-401 Sh 150, Pressurizer Vapor Temp Instrumentation & Misc Htr Interlocks, Rev 10

CAR 2166 B-401 Sh 156, Pressurizer Power Relief Valve 1RC-114, Rev 18

CAR 2166 B-401 Sh 185, Containment Pressure Protection Instrumentation 1PT-951, Rev 7

CAR 2166 B-401 Sh 1930, Auxiliary Feedwater to Steam Gen 1A Isolation Valve 1AF-55, Rev 13

CAR 2166 B-401 Sh 1935, Aux Feedwater Pump to Stm Gen 1C Isol. Valve 1AF-149, Rev 17

CAR 2166 B-401 Sh 1942, Auxiliary Feedwater Pump 1B-SB Discharge Pressure Control Valve 1AF-49, Rev 5

CAR 2166 B-401 Sh 1944, Auxiliary Feedwater to Steam Gen 1A Reg Valve 1AF-49, Rev 8

CAR 2166 B-401 Sh 1947, Aux Feedwater Steam Generator Reg. Valves Control Inputs, Rev 0

CAR 2166 B-401 Sh 2280, "A" Service Water Hdr Return to Normal Service Water Hdr 1SW-275, Rev 13

CAR 2166 B-401 Sh 272, Charging/Safety Injection Pumps to Reactor Coolant Sys Isol Valve 1CS-235, Rev 14

CAR 2166 B-401 Sh 947, RCP Thermal Barrier Isolation Valve 1CC-252, Rev 15

CAR 2166 B-401 Sh 955, RCP Component Cooling Water Supply Isolation Valve 1CC-207, Rev 14

CAR 2166 B-401 Sh 956, RCP Component Cooling Water Supply Isolation Valve 1CC-208, Rev 17

CAR 2166 B-401 Sh 959, RCP Thermal Barrier Containment Isolation Valve 1CC-249, Rev 19

CAR 2166 B-401 Sh 962, RCP Thermal Barrier Containment Isolation Valve 1CC-251, Rev 17

CPL-2165 G-1000S14, Safe Shutdown Flow Diagram Chemical & Volume Control System, Rev 3

CPL-2165 G-1000S21, Safe Shutdown Flow Diagram Component Cooling Water System, Rev 0

CPL-2166-S-2701, Fire Protection Fire Hazard Analysis Reactor Auxiliary Building Elevation 286', Rev. 8

CPL-2165 G-1000S02, Safe Shutdown Feedwater and Aux Feedwater Systems, Rev 6  
 CPL-2165 S-0545, Simplified Flow Diagram Condensate & Air Evacuation Systems, Rev 60  
 SK-60257-M-2003, Fire Damper AV-FDAS 91-1 Installation, RAB El. 236', 1C-SAB Pump  
 Transfer Switch Room, Revision 7

### **Procedures**

AOP-020, Loss of RCS Inventory or Residual Heat Removal While Shutdown, Rev. 35  
 AOP 27, Response to Acts against Plant Equipment, Rev. 40  
 AOP-27-BD, Response to Acts against Plant Equipment, Rev. 22  
 AOP-036, Safe Shutdown Following a Fire, Rev. 43  
 AOP-036-BD, Safe Shutdown Following a Fire, Rev. 14  
 AOP-036.02, Fire Area: 1-A-BAL-A, 1-A-BAL-G, 1-A-BAL-H, Rev. 12  
 AOP-036.04, Fire Areas: 1-A-BAL-C, 1-A-BAL-D, 1-A-BAL-F, 1-G, FPYARD, Rev. 17  
 AOP-036.05, Fire Areas: 1-A-CSRA, 1-A-CSRB, Rev. 15  
 AOP-036.08, Fire Areas: 1-A-SWGRA, 1-A-SWGRB, Rev. 17  
 AOP-41, Spent Fuel Pool Events, Rev. 1  
 AOP-41-BD, Spent Fuel Pool Events, Rev. 1  
 CHE-NGGC-0045, Nuclear Generation Group Chemical Control Program, Revision 15  
 CMP- 009, Installation of Fire Wrap, Revision 17  
 EDMG-001, Extreme Damage Event Initial Actions, Rev. 5  
 EGR-NGGC-0028, Engineering Evaluation  
 EGR-NGGC-005, Engineering Change, Revision 21  
 EOP-PATH-1, Rev. 28  
 EP-100, EP Program Administration, Rev 9  
 FIR-NGGC-0003, Nuclear Generation Group Hot Work Permit, Revision 5  
 FIR-NGGC-0009, Nuclear Generation Group NFPA 805 Transient Combustibles and Ignition  
 Source Controls Program, Revision 0  
 FIR-NGGC-0009, Nuclear Generation Group NFPA 805 Transient Combustibles and Ignition  
 Source Controls Program, Revision 1  
 FIR-NGGC-0130, Nuclear Generation Group National Fire Protection Association (NFPA) 805  
 Monitoring, Revision 0  
 FPIP-0208, Project Instruction, Scoping Fire Modeling, Revision 5  
 FPP-001, Fire Protection Program Manual, Revision 36  
 FPP-002, Fire Emergency, Revision 37  
 FPP-003, Fire Investigation Report, Revision 8  
 FPP-008, Control of Fuel Gases and Oxygen, Revision 11  
 FPP-013, Fire Protection-Minimum Requirements, Mitigating Actions and Surveillance  
 Requirements, Revision 65  
 FPP-001, Fire Protection Program Manual, Rev. 36  
 FPT-3560, Fire Wrap Inspection, 18-Month Interval, Revision 10  
 ISG-HS, Heat Sink, Rev. 8  
 QCC QFP8616H, Qualification Checkout, Fire Wrap, Revision 3  
 TPP-219, Emergency Services Training Program, Revision 17

### **Completed Surveillance Test Procedures and Test Records**

01903297, MPT-I0503, Cirrus Pro Locator Functional Check, dated 8/31/11  
 01903297, MPT-I0503, Cirrus Pro Locator Functional Check, dated 8/24/11  
 01903297, MPT-I0503, Cirrus Pro Locator Functional Check, dated 8/17/11  
 EPM 410, Communication and Facility Performance Tests Attachment 11, dated 6/29/11  
 EPM 410, Communication and Facility Performance Tests Attachment 9, dated 4/6/11  
 EPM 410, Communication and Facility Performance Tests Attachment 9, dated 2/8/10

Attachment

EPM 410, Communication and Facility Performance Tests Attachments 1-4, dated 8/18/11  
 EPM 410, Communication and Facility Performance Tests Attachments 1-4, dated 7/21/11  
 EPM 410, Communication and Facility Performance Tests Attachments 1-4, dated 6/16/11  
 EPM 410, Communication and Facility Performance Tests Attachments 1-4, dated 5/18/11  
 EPM 410, Communication and Facility Performance Tests Attachments 1-4, dated 3/17/11  
 EPM 410, Communication and Facility Performance Tests Attachments 1-4, dated 8/18/11  
 EPM 410, Communication and Facility Performance Tests Attachments 1-4, dated 2/17/11  
 EPM 410, Communication and Facility Performance Tests Attachments 1-4, dated 1/20/11  
 EPM 410, Communication and Facility Performance Tests, Rev. 6  
 EPM 420, Emergency Equipment Inventory Attachment 31, dated 11/12/10  
 EPM 420, Emergency Equipment Inventory Attachment 31, dated 3/17/11  
 EPM 420, Emergency Equipment Inventory Attachment 31, dated 6/23/11  
 EPM 420, Emergency Equipment Inventory Attachment 31, dated 6/23/11  
 EPM 420, Emergency Equipment Inventory Attachment 31, dated 9/13/10  
 EPM 420, Emergency Equipment Inventory, Rev. 10  
 EPM 420, Emergency Equipment Inventory, Rev. 9  
 EPM-200, ERO Training Program, Rev. 11  
 FPT-3012, Emergency Diesel Make-Up Pump Flow Test Annual Interval Modes: All, Rev. 2  
 FPT-3012, Emergency Diesel Make-Up Pump Flow Test Annual Interval Modes: All,  
 dated 8/25/10  
 FPT-3012, Emergency Diesel Make-Up Pump Flow Test Annual Interval Modes: All,  
 dated 8/19/09  
 FPT-3012, Emergency Diesel Make-Up Pump Flow Test Annual Interval Modes: All,  
 dated 11/28/08  
 FPT-3560, Fire Wrap Inspection 18-Month Interval Modes: All, Rev. 10  
 ISI-801, Inservice Testing of Valves, Rev 60  
 MNT-NGGC-1000, Conduct of Maintenance, Rev. 6  
 MPT-I0175, Annual Surveillance of the Incipient Fire Detection System Detectors and Fire  
 Alarm Control Panel, Rev.0  
 MPT-E0030, Self-Contained DC Emergency Lighting System Test/Inspection, Rev 24  
 MPT-E0032, Self-Contained DC Emergency Lighting System Eight Hour Life Test, Rev 23  
 OPT-3010, Fire hose Service Test Variable Interval Modes: ALL, Rev. 12  
 OPT-3130, Fire Response Vehicle Inspection Monthly Interval Mode: All, Rev. 12  
 OPT-3130, Fire Response Vehicle Inspection Monthly Interval Mode: All, dated 1/4/11  
 OPT-3130, Fire Response Vehicle Inspection Monthly Interval Mode: All, dated 3/29/11  
 OPT-3130, Fire Response Vehicle Inspection Monthly Interval Mode: All, dated 3/1/11  
 OPT-3130, Fire Response Vehicle Inspection Monthly Interval Mode: All, dated 6/28/11  
 OPT-3130, Fire Response Vehicle Inspection Monthly Interval Mode: All, dated 8/30/11  
 OPT-3130, Fire Response Vehicle Inspection Monthly Interval Mode: All, dated 12/2/10  
 ORT-1407, ACP/Safe Shutdown Material Audit Semiannual Interval Modes 1-6, Rev. 18  
 ORT-1407, ACP/Safe Shutdown Material Audit Semiannual Interval Modes 1-6, dated 3/25/11  
 ORT-1407, ACP/Safe Shutdown Material Audit Semiannual Interval Modes 1-6, dated 3/30/10  
 ORT-1407, ACP/Safe Shutdown Material Audit Semiannual Interval Modes 1-6, dated 9/30/10  
 ORT-3004, Emergency Response Equipment Restoration (Inside) Modes: All, dated 7/5/11  
 ORT-3004, Emergency Response Equipment Restoration (Outside) Modes: All, dated 7/5/11  
 ORT-3004, Emergency Response Equipment Restoration Modes: All, dated 6/30/11  
 ORT-3004, Emergency Response Equipment Restoration Modes: All, Rev. 9  
 ORT-8002, ISG Materials Audit Semiannual Interval Modes 1-6, 12/19/09  
 ORT-8002, ISG Materials Audit Semiannual Interval Modes 1-6, dated 12/26/10  
 ORT-8002, ISG Materials Audit Semiannual Interval Modes 1-6, dated 6/21/10  
 ORT-8002, ISG Materials Audit Semiannual Interval Modes 1-6, dated 6/25/11

ORT-8002, ISG Materials Audit Semiannual Interval Modes 1-6, Rev. 7  
 OST-1080, Auxiliary Feedwater pump 1X-SAB Full Flow Test Quarterly Interval Mode 1, 3, Rev 25  
 OST-1411, Auxiliary Feedwater Pump 1X-SAB Operability Test Quarterly Interval Mode 1, 2, 3, Rev 36  
 OST-1813, Remote Shutdown System Operability, Rev 43  
 OST-1815, Remote Shutdown: Test of Interposing MDR Relays Primary and backup Fuses, Rev 9  
 PM-E0053, MOV Control Circuit Grounding Test, Rev 0  
 PM-I0062, Quarterly Maintenance on Incipient Fire Detection System Detectors, Rev. 2  
 SEC-NGGC-2167, Security Training, Rev.8  
 SEC-NGGC-2173, Security Program Systematic Approach to Training, Rev. 6  
 TPP-201, Reactor Operator and Senior Operator Initial Training Program, Rev. 16  
 TPP-205, Non-Licensed Operator Training Program, Rev. 12  
 TRN-NGGC-0502, Use and Administration of Passport Personnel Qualification Data (PQD) and the PeopleSoft Training Module, Rev. 13  
 WO: 01834809, 1FP-EDMP Bi-Monthly Inspection and Test Run of Pump, dated 3/17/11  
 WO: 01881355, PM-I0062 Quarterly Maintenance-Incipient Fire Detector 1SF Cable Spread Room A, dated 5/3/11  
 WO: 01881356, PM-I0062 Quarterly Maintenance-Incipient Fire Detector 1SF Cable Spread Room B, dated 5/12/11  
 WO: 01881358, PM-I0062 Quarterly Maintenance-Incipient Fire Detector 1SF Main Control Room, dated 5/12/11  
 WO: 01881360, PM-I0062 Quarterly Maintenance-Incipient Fire Detector 1SF MTC Room, dated 5/12/11  
 WO: 01881361, PM-I0062 Quarterly Maintenance-Incipient Fire Detector 1SF Switchgear Room A, dated 5/3/11  
 WO: 01881362, PM-I0062 Quarterly Maintenance-Incipient Fire Detector 1SF Switchgear Room B, dated 5/12/11  
 WO: 01881363, PM-I0062 Quarterly Maintenance-Incipient Fire Detector 1SF PIC Room, dated 5/3/11  
 WO: 01881364, PM-I0062 Quarterly Maintenance-Incipient Fire Detector 1SF PIC Room, dated 5/3/11

### **Emergency Lighting Test Records**

00683977 23, Install Fire Damper AV-FDAS 91-1, RAB El. 236', 1C-SAB Pump Transfer Switch Room, completed 4/3/2006  
 00683977 35, Remove D584 and Install Fire Door 1FP-DO584, RAB El. 236', 1C-SAB Pump Transfer Switch Room, completed 5/8/2006

### **Training Documents**

EQR-EOF02, Emergency Preparedness Advisor, Rev, 14  
 Operations Licensed Operator Continuing Training (LOCT), 2009  
 Operations Non-Licensed Operator Continuing Training (NLOCT), 2009

### **Calculations**

HNP-E/ELEC-0001 Appendix 1, Compliance Assessment 1-A-BAL-C, Rev 5  
 HNP-E/ELEC-0001 Appendix 1, Compliance Assessment 1-A-CSR, Rev 5  
 HNP-E/ELEC-0001 Appendix 1, Compliance Assessment 1-A-SWGRB, Rev 5  
 HNP-E/ELEC-0001 Appendix 1, Compliance Assessment 12-A-CR, Rev 5  
 HNP-E/ELEC-0001 Attachment 12, Fire Area Assessment 1-A-BAL-C, Rev 5  
 HNP-E/ELEC-0001 Attachment 23, Fire Area Assessment 1-A-CSR, Rev 5  
 HNP-E/ELEC-0001 Attachment 23, Fire Area Assessment 1-A-SWGRB, Rev 5  
 HNP-E/ELEC-0001 Attachment 43, Fire Area Assessment 12-A-CR, Rev 5

HNP-E/ELEC-0002, NFPA 805 Transition – Non-Power Operational Modes Review, Rev. 2  
 HNP-M/MECH-1105, NFPA 805 Transition – Fire Area 1-A-BAL-C Fire Safety Analysis, Rev 2  
 HNP-M/MECH-1120, NFPA 805 Transition – Fire Area 1-A-CSRFB Fire Safety Analysis, Rev 2  
 HNP-M/MECH-1123, NFPA 805 Transition – Fire Area 1-A-SWGRB Fire Safety Analysis, Rev 2  
 HNP-M/MECH-1127, NFPA 805 Transition – Fire Area 12-A-CR Fire Safety Analysis, Rev 2  
 E-5506 Attachment B Pg 15 of 52, 1B24 Coordination, Rev 8  
 E-5506 Attachment C pg C-8 of C-27, Bus 1B24, Rev 8  
 E-5506 Attachment B Pg 44 of 52, 1B1 Coordination, Rev 8  
 E-5506 Attachment C pg C-23 of C-27, Bus 1B1, Rev 8  
 E-5526, Fuse Coordination Study for Safe Shutdown in Case of Fire, Rev 1  
 HNP-M/MECH-1105, NFPA 805 Transition - Fire Area 1-A-BAL-C Fire Safety Analysis, Rev. 2  
 HNP-E/ELEC-0001, Safe Shutdown Analysis in Case of Fire, Rev. 5  
 HNP-M/MECH-1123, NFPA 805 Transition - Fire Area 1-A-SWGRB Fire Safety Analysis, Rev. 1  
 HNP-M/MECH-1120, NFPA 805 Transition - Fire Area 1-A-CSRFB Fire Safety Analysis, Rev. 2  
 HNP-F/PSA-0078, Harris Fire PRA- Scoping Walkdown Calculation Attachment 2, Rev. 1  
 HNP-M/MECH-1177, NFPA 805 Transition – Fire Area 1-A-BAL-G fire Safety Analysis, Rev. 0  
 HNP-M/MECH-1105, NFPA 805 Transition – Fire Area 1-A-BAL-C Fire Safety Analysis, Rev. 2  
 HNP-M/MECH-1120, NFPA 805 Transition – Fire Area 1-A-CSRFB Fire Safety Analysis, Rev. 2  
 HNP-M/MECH-1123, NFPA 805 Transition – Fire Area 1-A-SWGRB Fire Safety Analysis,  
 Rev. 1  
 HNP-M/MECH-1124, NFPA 805 Transition – Fire Area 1-A-ACP Fire Safety Analysis, Rev. 3  
 HNP-M/MECH-1177, NFPA 805 Transition – Fire Area 1-A-BAL-G Fire Safety Analysis, Rev. 0  
 Fire Protection Program Evaluation 181663, Evaluation of Safe Shutdown Function, Fire Area  
 Boundaries, and Physical Layout of CSIPs and Transfer Switch, Rev. 0  
 HNP-F/PSA-0085, Section 3.5, Manual Suppression Importance, Rev. 0  
 HNP-M/BMRK-0001, Code Compliance Evaluation NFPA 72E, Automatic Fire Detectors, Rev. 4  
 HNP-M/BMRK-0003, Code Compliance Evaluation NFPA 80, Standard for Fire Doors and  
 Windows, Rev. 3  
 HNP-M/BMRK-0004, Code Compliance Evaluation NFPA 90A, Air Conditioning and Ventilating  
 Systems, Rev. 2  
 HNP-M/BMRK-0009, Code Compliance Evaluation NFPA 13, Sprinkler Systems, Rev. 2  
 HNP-M/BMRK-0011, Code Compliance Evaluation NFPA 805, Performance Based Standard for  
 Fire Protection for Light Water Reactor Electric Generating Plants-2001 Edition, Rev. 0  
 HNP-M/BMRK-0012, Code Compliance Evaluation NFPA 600, Standard on Industrial Fire  
 Brigades, Rev. 0  
 HNP-M/BMRK-0013, Code Compliance Evaluation NFPA 51B, Standard for Fire Prevention in  
 Use of Cutting and Welding Processes, Rev. 5  
 HNP-M/BMRK-0014, Code Compliance Evaluation NFPA 30, Flammable and Combustible  
 Liquids Code, Rev. 6  
 HNP-M/BMRK-0015, Performance Based Fire Protection Surveillance Frequency Program,  
 Rev. 0  
 HNP-M/BMRK-0018, Risk Informed Compensatory Actions for Fire Protection System  
 Impairments, Rev. 0  
 HNP-M/MECH-1208, Thermal Shield Fire Modeling, Rev. 0

### **Design Changes**

EC 70350, section B.6.19, Failure Effects on Requirements of Structures, Systems, and  
 Components: ASI System  
 EC 62343, Fire Protection for Steam Generator PORV-C Cables for Auxiliary Control Panel  
 Operation (ACP) - NFPA 805, Rev. 9

- EC 62820, Upgrade Reliability of Operator SSD Communications at the ACP for a Postulated Fire in the MCR, Rev. 1
- EC 68645, Protect 1AF-74 From Fire Damage for a Postulated Fire in Fire Zone 1-A-SWGRB (B Switchgear Room), Rev.6
- EC 68646, Add Thermal Shields over Bus 1B-SB, 1B-NNS, 1E-NNS, 1B1-NNS in SWGR Room 1B, Rev.3
- EC 68648, Protect Cable 10988B-SR4 to Prevent Spurious AFW Isolation to Steam Generators, Rev. 3
- EC 68658, Prevent Spurious Opening of Either 1CC-147 or 1CC-167 During a Postulated Fire in 12-A-CR, Rev. 8
- EC 68769, HNP Evaluation/Modification of SSD MOVs Subject to IN 92-18
- EC 69501, Design and Installation of Incipient Fire Detection For NFPA 805, Rev. 5
- EC 69764, Upgrade Existing Credited Hemyc Wrap Applications, Rev. 3
- EC 69765, Upgrade Existing Credited MT Wrap Applications, Rev. 2
- EC 70027, Add 480 VAC Power Outlets to Supply Compensatory Fans for Cooling at Charging Safety Injection Pump (CSIP) and B RHR Pump Rooms
- EC 70350, Alternate Seal Injection and Back-Up Diesel Generator System, Rev. 15
- EC 70895, Protect TD AFW MOVs Free from Fire Damage in 12-A-CRC-1, Rev. 5
- EC 71147, Prevent Multiple Spurious Operation Due to Fire in MCC Vertical Stacks-NFPA 805, Rev. 11
- EC 60257, Development of New Fire Area 1-A-BAL-G, Revision 7
- EC 60257Z08 Attachment H, Transfer Switch and CSIP C Pump Room Penetration Seal Closure Verification, Revision 7

### **Fire Protection Pre-Plans and Critiques**

- FPP-012-02-RAB 190-216, Reactor Auxiliary Building Elevations 190 and 216 Fire Pre-Plan, Rev. 5
- FPP-012-02-RAB 236, Reactor Auxiliary Building Elevation 236 Fire Pre-Plan, Rev. 7
- FPP-012-02-RAB 261, Reactor Auxiliary Building Elevation 261 Fire Pre-Plan, Rev. 8
- FPP-012-02-RAB 286, Reactor Auxiliary Building Elevation 286 Fire Pre-Plan, Rev. 10
- FPP-012-02-RAB 305-324, Reactor Auxiliary Building Elevations 305 and 342 Fire Pre-Plan, Rev. 11
- A09A-4-236-0483, 1C-CSIP-SAB Transfer Switch Room, FA 1-A-BAL-G, Rev. 7
- A33-6-286-0637, Switchgear Ventilation Room B, FA 1-A-BAL-C, Rev. 10
- A35-6-286-0641, Switchgear Room B, FA 1-A-SWGRB, Rev. 10
- A42-6-286-0653, Cable Spreading Room B, FA 1-A-CSRB, Rev. 10
- A43-6-286-0827, PIC Room B. FA 1-A-CSRB, Rev. 10

### **Applicable Codes and Standards**

- NFPA 72, National Fire and Safety Code, 2007 Edition
- NFPA 13, Installation of Sprinkler Systems, 1978 Edition
- NFPA 14, Standard for the Installation of Standpipe and Hose Systems, 1976 Edition
- NFPA 30, Flammable and Combustible Liquids Code, 1977 Edition
- NFPA 72D, Standard for the Installation, Maintenance, and Use of Proprietary Protection Signaling Systems, 1975 Edition
- NFPA 72E, Automatic Fire Detectors, 1978 Edition
- NFPA 80, Standard on Fire Doors and Windows, 1979 Edition
- NFPA 90A, Standard on Air Conditioning and Ventilating Systems, 1981 Edition
- NFPA 600, Standard on Industrial Fire Brigades, 2000 Edition
- NFPA 805, Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants, 2001 Edition

**Technical Manuals and Vendor Information**

Datasheet for Thermotech Inc., Rate Anticipation Heat Detector, Model 302, dated 4/13/1999  
 Datasheet for Nittan Inc., Product of Combustion Ionization Smoke Detector Model NID-48F, dated 6/1991  
 Datasheet for Reef Industries, Inc., Griffolyn™ Type 55 FR low density polyethylene plastic film, PGN Cat ID 9220093628, dated 09/2006  
 Steel Door Institute SDI 111-09, Standard Steel Door, Frames, Accessories and Related Components, dated 2009  
 Steel Door Institute SDI 111-A, Standard Steel Door Frames, Details, dated 2008  
 Steel Door Institute, SDI 100, Recommended Specifications for Standard Steel Fire Doors and frames, Revision 11/2003  
 Steel Door Institute, SDI 118-01, Basis Fire Door Requirements, Rev. 2001  
 Steel Door Institute, SDI 122-07, Installation and Troubleshooting Guide for Standard Steel Doors and Frames, Rev. 2007  
 Trimpac® Firecycle® Multi-Cycle Systems, Technical Manual for Installation, Operation and Maintenance, dated July 2009

**Licensing Basis Documents**

Shearon Harris NFPA 805 Safety Evaluation, dated June 28, 2010  
 UFSAR Section 9.5- Auxiliary Systems  
 HNP Operating License Condition 2.F, Fire Protection Program  
 HNP letter to Nuclear Regulatory Commission (Serial: PE&RAS 05-033), "Letter of Intent to Adopt NFPA 805 [ADAMS Accession No. ML051720404]," dated 6/10/2005  
 HNP letter to Nuclear Regulatory Commission (Serial: HNP-08-061), "Request for License Amendment to Adopt NFPA 805 Performance-Based Standard for Fire Protection for Light Water Reactor Generating Plants 2001 Edition [ADAMS Accession No. ML081560641]," dated 05/29/2008  
 Nuclear Regulatory Commission letter to HNP, "License Amendment No. 133 and Safety Evaluation Regarding Adoption of NFPA Standard 805 [ADAMS Accession No. ML11144A052]," dated 6/28/2010  
 Nuclear Regulatory Commission letter to HNP, "Corrections of Typographical and Formatting Errors for License Amendment No. 133 and Associated Safety Evaluation Regarding Adoption of NFPA Standard 805 [ADAMS Accession No. ML102510852]," dated 2/28/2010  
 HNP letter to Nuclear Regulatory Commission (Serial: HNP-II-037), "FSAR Amendment No. 57 [ADAMS Accession No. ML11144A052]," dated 05/12/2011  
 HNP letter to Nuclear Regulatory Commission (Serial HNP-06-082), "60-Day Response to NRC Generic Letter 2006-03, 'Potentially Nonconforming HEMYC™ and MT™ Fire Barrier Configurations, [ADAMS Accession No. ML061710062]," dated June 9, 2006  
 HNP Operating License Condition 2.C. (11), Mitigation Strategy License Condition  
 HNP Technical Specification 6.8, Procedures and Programs  
 NRC Regulatory Guide 1.33, Quality Assurance Program Requirements (Operations), Rev. 2

**Audits and Self Assessment Reports**

AR-388297, HNP-NFPA 805 Implementation Readiness Self-Assessment  
 AR-440668, HNP-NFPA 805 Triennial Fire Protection Inspection Procedure  
 HNP FP-NFPA 805 Fire Protection Program Health Report for Period Q3-2011 (7/1/2011 – 9/30/2011), dated 9/20/2011

**Other Documents**

HNP-AFW-001E, Circuit Analysis 1AF-49:002  
 HNP-CCW-005E, Circuit Analysis 1CC-207:002  
 HNP-CCW-005E, Circuit Analysis 1CC-208:002  
 HNP-CCW-005E, Circuit Analysis 1CC-249:002  
 HNP-CCW-005E, Circuit Analysis 1CC-251:002  
 HNP-CCW-005E, Circuit Analysis 1CC-252:002  
 HNP-INST-020E, Circuit Analysis PT-951  
 HNP-RCSPC-019E, Circuit Analysis 1RC-114:004  
 HNP-ESW-009E, Circuit Analysis 1SW-275:002  
 Cable Routing information for 1SW-270:002  
 IST Program basis Document, 1AF-136  
 IST Program basis Document, 1AF-204  
 IST Program basis Document, 1AF-148  
 IST Program basis Document, 1AF-206  
 System Scoping Review, System 5215 DC Emergency Lighting  
 EQR-EOF01, ERO Qualification Record-Emergency Response Manager, Rev. 14  
 EQR-EOF01, ERO Qualification Record-Emergency Preparedness Advisor, Rev. 14  
 EQR-TSC01, ERO Qualification Record-Site Emergency Coordinator, Rev. 15  
 EQR-TSC02, ERO Qualification Record-TSC Senior Reactor Operator, Rev. 13  
 EQR-TSC04, ERO Qualification Record-TSC AAT-Shift Technical Advisor, Rev.8  
 Operations Licensed Operator Continuing Training Backbone Schedule, 2010/2011  
 Operations Non-Licensed Operator Continuing Training Backbone Schedule, 2010/2011  
 JPM-IP-227, Licensed Operator Continuing Training -TDAFW Pump Operation with Loss of AC and DC Power  
 JPM-IP-229, Licensed Operator Continuing Training - Filling the CST from the Fire Header  
 JPM-IP-226, Licensed Operator Continuing Training - Fill the RWST with Fire Water  
 JPM-IP-230, Licensed Operator Continuing Training - Flooding Containment with EDMP  
 JPM-IP-228, Licensed Operator Continuing Training – Emergency Make-up to the Fuel Pools From the Fire Header  
 Fire Protection Handbook, 17th Edition  
 HNP NFPA Transition Report, Attachment A, Table B-1, Transition of Fundamental FP Program and Design Elements (NFPA 805 Chapter 3), Supplement 3  
 Fire Brigade Drill Time Report for Brigade Shifts from January 2008 to August 2011  
 FIR-NGGC-0009 Job Aid, HNP – Permanent Staging Locations, Revision 1  
 FPP-003, Fire Investigation Reports, dated 12/30/2005, 6/6/2007, 8/12/2008, 10/19/2009, and 2/2/2011  
 NRC Temporary Instruction 2515/183, Followup to the Fukushima Daiichi Nuclear Station Fuel Damage Event, dated 03/23/2011  
 Shearon Harris Nuclear Power Plant – NRC Team Inspection Report 05000400/2008007, dated 07/02/2008  
 Shearon Harris Nuclear Power Plant – NRC Temporary Instruction 2515/183 Inspection Report 05000400/2011010, dated 05/13/2011

**Nuclear Condition Reports Generated as a Result of This Inspection**

485422, Conduit Collar 10310A in 1-A-CSRB not Installed EC 69764  
 485875, AOP-036.05 Section 3.2 Step 34.A Black Diamond is on the Wrong Temp Element  
 486083, AOP-036.05, Section 3.2 Step 34.A has Instrument Numbers for the Wrong Train  
 489107, AOP-036.XX RHR Flow Required Action Deficiency  
 489261, Thermal Shield Configuration Control



449158, Operations Training Material Revisions (SRO)  
481553, RAB 286 Sprinkler Head Incorrectly Installed  
485184, FPP-001 Section 4.1 Should be Clarified  
485910, Transfer Panel Testing  
486332, Revise QCC QFP8616H Fire Wrap  
488781, NSCA (SSD) Equipment in NFPA 805 Monitoring  
489038, Personnel Performing Fire Detection PM were Unqualified  
489090, AOP-036.04 Step 10 for Fire Area 1-A-BAL-C has a Numbering Problem  
489092, AOP-036.04 Errors in Procedure  
489104, Original NITTAN UL Test Report Unavailable  
489158, HNP-F/PSA-0079 Fire PRA Calculation Inconsistency  
489186, Several Areas for Improvement were Noted for FIR-NGGC-0009  
489209, Improvements to the NFPA 805 Monitoring Program  
489300, Two Ignition Sources in HNP-F/PSA-0079 Could not be Located in the Field  
489366, Combustible Material in SWGR Protected by Thermal Shield will not Result in a Fire Greater Than 69 KW  
489387, Potential Inadequate Validation of AOPs  
489655, Add to the Baseline Fire PRA a Scenario Which Includes a Non-Closed Fraction of MCC Fire Scenarios  
489687, Fire Watch Locations  
486087, Ignition Sources not in Calculation  
484871, FPP-002 Editorial Error  
489589, Editorial Error Noted in AOP 36.08

**Other Corrective Action Documents (ARs/NCRs) Reviewed During This Inspection**

454952, Time Critical JPM Discrepancy  
471094, DSDG Did not Start During OPT-1530  
487331, Failure of DSDG to Start During OPT-1530  
481581, ASI Pump failed to Stop During Testing  
482383, FIR-NGGC-0009 Rev. 1 Omitted Change to Job AID

**LIST OF ACRONYMS**

AB	Auxiliary Building
ACP	Auxiliary Control Panel
AFW	Auxiliary Feedwater
AOP	Abnormal Operating Procedure
AR	Action Request
CAP	Corrective Action Program
CCW	Component Cooling Water
CFR	Code of Federal Regulation
CP&L	Carolina Power & Light
CSIP	Charging Safety Injection Pump
CST	Condensate Storage Tank
DS	Dedicated Shutdown
DSP	Dedicated Shutdown Procedure
EC	Engineering Change
EL	Elevation
ELU	Emergency Lighting Unit
EOP	Emergency Operating Procedure
ERFBS	Electrical Raceway Fire Barrier System
FA	Fire Area
FHA	Fire Hazards Analysis
FM	Factory Mutual
FPP	Fire Protection Program
FSA	Fire Safety Analysis
FZ	Fire Zone
GL	Generic Letter
HNP	Harris Nuclear Plant
HVAC	Heating, Ventilation, and Air Conditioning
IMC	Inspection Manual Chapter
IN	Information Notice
IP	Inspection Procedure
LAR	License Amendment Request
MCC	Motor Control Center
MCR	Main Control Room
NCR	Nuclear Condition Report
NFPA	National Fire Protection Association
NRC	U. S. Nuclear Regulatory Commission
NSCA	Nuclear Safety Capability Assessment
OEP	Operating Experience Program
OSHA	Occupational Safety and Health Administration
P&IDs	Piping and Instrumentation Drawings
RIS	Regulatory Issue Summary
Rm	Room
RNO	Response Not Obtained
ROP	Reactor Oversight Process
SCBA	Self-Contained Breathing Apparatus
SDP	Significance Determination Process

SER	Safety Evaluation Report
SSA	Safe Shutdown Analysis
SSD	Safe Shutdown
SSER	Supplemental Safety Evaluation Report
SW	Service Water
UFSAR	Updated Final Safety Analysis Report
UL	Underwriters Laboratories
VAC	Volts Alternating Current
VFDR	Variances from Deterministic Requirements
WO	Work Order