



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION II
SAM NUNN ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8931

December 20, 2007

Carolina Power and Light Company
ATTN: Mr. Tom Walt
Vice President - Robinson Plant
H. B. Robinson Steam Electric Plant
Unit 2
3851 West Entrance Road
Hartsville, SC 29550

SUBJECT: H. B. ROBINSON STEAM ELECTRIC PLANT - NRC TRIENNIAL FIRE
PROTECTION INSPECTION REPORT 05000261/2007007 AND EXERCISE
OF ENFORCEMENT DISCRETION

Dear Mr. Walt:

On November 9, 2007, the U.S. Nuclear Regulatory Commission (NRC) completed a triennial fire protection inspection at your H. B. Robinson Steam Electric Plant Unit 2. The enclosed inspection report documents the inspection results, which were discussed at an exit meeting on that date, with you and members of your staff.

The inspection examined activities conducted under your licenses 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 two noncompliances that were identified during the inspection for which the NRC is exercising enforcement discretion. The NRC is not taking any enforcement action for the noncompliances because it meets the criteria of the NRC Enforcement Policy, "Interim Enforcement Policy Regarding Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48)."

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: Shakur Walker for/

D. Charles Payne, Chief,
Engineering Branch 2
Division of Reactor Safety

Docket No.: 50-261
License No.: DPR-23

Enclosure: Inspection Report 05000261/2007007
w/Attachment; Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 50-261

License No.: DPR-23

Report No.: 05000261/2007007

Licensee: Carolina Power and Light Company

Facility: H. B. Robinson Steam Electric Plant Unit 2

Location: Hartsville, South Carolina

Dates: October 22-26, 2007 (Week 1)
November 5-9, 2007 (Week 2)

Inspectors: R. Rodriguez, Reactor Inspector (Lead Inspector)
R. Fanner, Reactor Inspector
D. Merzke, Reactor Inspector
G. Wiseman, Senior Reactor Inspector

Accompanying Personnel: P. Braxton, Reactor Inspector (training status)

Approved by: D. Charles Payne
Engineering Branch 2
Division of Reactor Safety

Enclosure

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SUMMARY OF FINDINGS

IR 05000261/2007-007; 10/22 - 26/2007 and 11/5 - 9/2007; H. B. Robinson Steam Electric Plant Unit 2; Fire Protection.

This report covers an announced two-week triennial fire protection inspection by a team of four specialist inspectors (including one inspector in training), from the U. S. Nuclear Regulatory Commission's (NRC's) Region II office located in Atlanta, Georgia. 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.

A. NRC-Identified and Self-Revealing Findings

No findings of significance were identified.

B. Licensee-Identified Violations

None.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R05 Fire Protection

This report presents the results of a triennial fire protection inspection for a plant in transition to National Fire Protection Association (NFPA) Standard 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants, 2001 Edition." This inspection was conducted in accordance with NRC Inspection Procedure (IP) 71111.05TTP, "Fire Protection-NFPA 805 Transition Period (Triennial)." The objective of the inspection was to review the H. B. Robinson Unit 2 (HBR2) fire protection program (FPP) for selected risk-significant fire areas. The team selected three fire areas for detailed review to examine the licensee's implementation of the FPP. The three fire areas chosen for review were selected based on risk insights from the licensee's Individual Plant Examination for External Events (IPEEE), information contained in FPP documents, results of prior NRC triennial fire protection inspections, and in-plant tours by the inspectors. Section 71111.05-05 of the IP specifies a minimum sample size of three fire areas. Detailed inspection of these three fire areas fulfills the procedure completion criteria. The three areas chosen were:

- Fire Area (FA) A5, Fire Zone (FZ) 22- Control Room, Auxiliary Building (AB), Elevation (EL) 254 foot (ft.)
- FA A5, FZ 23 - Hagan Room, AB EL 254 ft.
- FA G1, FZ 25A - Turbine Building EL Ground Floor

For each of the selected fire areas, 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 Post-Fire Safe Shutdown From Main Control Room (Normal Shutdown)

a. Inspection Scope

Methodology

The team reviewed the Appendix R Safe Shutdown Component/Cable Separation Analysis (SSA), FPP-RNP-300, dedicated shutdown procedures (DSPs), piping and instrumentation drawings (P&IDs), electrical drawings, the Updated Final Safety Analysis Report (UFSAR), and other supporting documents to verify that hot and cold shutdown could be achieved and maintained from the main control room (MCR) for postulated fires in FA G1, FZ 25A. This review also included verification that shutdown from the MCR could be performed both with and without the availability of offsite power. Plant walkdowns were performed to verify that the plant configuration was consistent with that described in the fire hazards analysis (FHA) and SSA. These inspection activities focused on ensuring the adequacy of systems selected for reactivity control,

reactor coolant makeup, reactor heat removal, process monitoring instrumentation and support systems functions. The team reviewed the systems and components credited for use during this shutdown method to verify that they would remain free from fire damage.

Operational Implementation

The team reviewed the adequacy of procedures utilized for post-fire safe shutdown (SSD) and performed a walk through of procedure steps to ensure the implementation and human factors adequacy of the procedures. The team also reviewed selected operator 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.

The team reviewed time critical actions including those for selected components to prevent fire-induced spurious operation for decay heat removal required components. The team reviewed and walked down applicable sections of fire response procedure DSP-015, "Hot Shutdown from the Control Room with a Fire in the Turbine Building," for FA G1, FZ 25A.

The team reviewed local operator manual actions to ensure that the actions could be implemented in accordance with plant procedures in the times necessary to support the SSD method for the applicable FA and to verify that those actions met the criteria in Enclosure 2 of NRC IP 71111.05TTP. The team reviewed Non-Conformance Report (NCR) corrective action document NCR 205333, Manual Operator Actions in Response to a Fire, RIS 2006-010, to verify that the licensee had identified operator manual actions for post-fire SSD in 10 CFR 50, Appendix R section III.G.2 designated areas and had plans in place to keep NCR 205333 open to assess and track resolution of the manual action issue as part of the plant-wide risk evaluation for transition to NFPA 805.

b. Findings

Inadequate Separation and Protection of CST Level Instrument Cables and Equipment Required for SSD in Fire Area G1, FZ 25A

Introduction: The team identified a noncompliance with 10 CFR 50, Appendix R, Section III.G.2, for the licensee's failure to ensure that one train of redundant Condensate Storage Tank (CST) level indication was free of fire damage in FA G1, FZ 25A. Additionally, the team identified the lack of full area coverage of automatic fire detection and suppression systems for Fire Area G1. The violation meets the criteria of NRC Enforcement Policy, "Interim Enforcement Policy Regarding Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48)" for enforcement discretion.

Description: For a fire in FA G1, FZ 25A, procedure DSP-015, "Hot Shutdown From the Control Room with a Fire in the Turbine Building," would be utilized to safely shutdown the plant from the MCR. Step 35 directs the operator to check CST level less than 10%. The licensee's SSA credits instrument LT-1454A, CST level indication, as being available to the operators in the MCR for a fire in FA G1, FZ 25A. This provides an indication to the operators of when to align Service Water (SW) backup to Auxiliary

Feedwater (AFW) water supply. This alternate alignment needs to be performed because the inventory in the CST could be depleted in approximately 2 hours. The team identified that instrument LT-1454A was not protected for a fire in FA G1, FZ 25A and would not be available as specified in operator response procedure DSP-015.

Once this issue was identified, it was entered into the licensee's corrective action program (CAP) as NCR 00252232. Compensatory measures were put in place prior to the inspectors leaving the site. DSP-015 was later revised to align SW backup to AFW water supply 105 minutes into the event if CST level indication is not available.

Additionally, the team identified the lack of full area coverage of automatic fire detection and suppression systems for FA G1, Turbine Building, Fire Zones 25 A, B, C, E, F, and G. In Supplemental Safety Evaluation Report (SSER) dated September, 17, 1986, the NRC granted the licensee an exemption from the technical requirements of 10 CFR 50, Appendix R Section III.G.3, for six FZs located in this FA where fire detection and fixed suppression systems had not been installed throughout the area under consideration. Each of the fire zones under consideration at that time (1986) contained redundant trains of normal safe shutdown systems; however, alternative safe shutdown capability electrically independent from the zones would be available to be used to achieve and maintain safe shutdown.

In a letter dated May 31, 2001, Carolina Power and Light (CP&L) notified the NRC that the completion of an analysis in 1998, had resulted in re-designation of Fire Area G1 from a 10 CFR 50, Appendix R Section III.G.3 area to Section III.G.2 area. Consequently, NRC-granted exemptions to 10 CFR 50, Appendix R Section III.G.3, were no longer necessary for the re-designated areas which now met the requirements of 10 CFR 50, Appendix R Section III.G.2. The inspectors' review of the licensee's safety evaluation screening associated with the plant area re-designation (ESR 00-00042, Revision 0) found that the licensee reviewers inappropriately determined that no new exemptions were required to satisfy Appendix R requirements. In a letter dated September 5, 2001, the NRC acknowledged the intent of the May 31, 2001 CP&L letter to share review findings. According to CP&L, HBR2 were now in compliance with 10 CFR 50, Appendix R, Section III.G.2 and no additional licensing action was anticipated from NRC.

During walk downs of Fire Area G1, the team identified that Fire Zones 25B, C, E, F, and G of the Turbine Building lacked full area fire detection and automatic fire suppression. A portion of Fire Zone 25A had fire detection located on a suspended ceiling but, no automatic fire suppression was installed within this area. This portion of Fire Zone 25A is the Radiologically Controlled Area Entry during plant outages but is utilized as a security operations and locker area during normal plant operation. A large portion of FA G1 lacked full area automatic fire detection and automatic fire suppression capability as required by 10 CFR 50, Appendix R, Section III.G.2, nor had the licensee requested exemptions from any technical requirements of the fire protection rule. This issue was entered into the licensee's CAP as NCR 252199.

Analysis: The finding is a performance deficiency because the licensee failed to ensure that one train of systems was free of fire damage in accordance with 10 CFR 50, Appendix R, Section III.G.2. The finding is more than minor because it is associated

with the external factors attribute of the Mitigating Systems cornerstone, i.e., fire, and it affects the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was given a high degradation rating because the SSD analysis was incomplete. The SDP Phase 1 analysis concluded that a Phase 2 analysis was required. The team performed walkdown inspections of the affected instrument in Fire Area G1 and looked for possible ignition sources (both fixed and transient) that could damage the target cables in accordance with the zone of influence charts given in Tables 2.3.2 and 2.3.3 of Inspection Manual Chapter (IMC) 0609, Appendix F. The team excluded those ignition sources that fell outside the zone of influence for the target cables. The lack of full area coverage of automatic fire detection and suppression systems for FA G1 was taken into account in the analysis. Since instrument LT-1454A fails low on a loss of power, a hot short would be needed in order to cause it to fail high. Based on the low fire ignition frequency of the sources within the zone of influence and the probability of spurious actuation, the team concluded that this issue would not be associated with a finding of high safety significance (Red).

Enforcement: 10 CFR 50.48(b)(2) requires, in part, that all nuclear power plants licensed to operate prior to January 1, 1979, must satisfy the applicable requirements of Appendix R to this part, including specifically the requirements of Sections III.G., III.J, and III.O. Specifically, 10 CFR 50, Appendix R, Section III.G.2 states in part that one of the following means of ensuring that one of the redundant trains is free of fire damage: separation by having a 3-hour fire barrier, or 20 feet of horizontal separation with no intervening combustibles with fire detectors and an automatic fire suppression system, or an enclosure having a 1-hour rating with fire detectors and an automatic fire suppression system. Contrary to the above, on October 26, 2007, the inspectors identified that level instrument LT-1454A was not ensured to be free of fire damage in FA G1, FZ 25A in accordance with 10 CFR 50, Appendix R, Section III.G.2. As a consequence, a fire-induced failure of LT-1454A could result in the CST reaching a level below the adequate point of Net-Positive Suction Head (NPSH) of the AFW pump. Additionally, CST inventory could be depleted in approximately 2 hours. This issue was entered into the licensee's CAP as NCRs 252232 and 252199.

No enforcement action is required for the above noncompliance because pursuant to the Commission's Enforcement Policy and NRC Manual Chapter 0305, under certain conditions fire protection findings at nuclear power plants that transition their licensing bases to 10 CFR 50.48(c) are eligible for enforcement and reactor oversight process (ROP) discretion. The Enforcement Policy and ROP also state that the finding must not be evaluated as Red.

Because the licensee committed, prior to December 31, 2005, to adopt NFPA 805 and change their fire protection licensing bases to comply with 10 CFR 50.48(c), the NRC is exercising enforcement discretion for this issue in accordance with the NRC Enforcement Policy, "Interim Enforcement Policy Regarding Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48)." Specifically, this issue would have been expected to be identified and addressed during the licensee's transition to NFPA 805, it was entered into the licensee's corrective action program, was not likely to have been previously identified by routine licensee efforts, was not willful, and was not associated with a finding of high safety significance.

.02 Protection of Safe Shutdown Capabilities

a. Inspection Scope

For the selected FA/FZs, the team evaluated the potential for fires, the combustible fire load characteristics, and the potential exposure fire severity. The team reviewed the HBR2 Fire Protection Manual, OMM-002, the UFSAR, Appendix 9.5.1A, the FHA and selected plant administrative procedures which established and implemented controls and practices to prevent fires and to control the storage of permanent and transient combustible materials and ignition sources. This review was performed to ensure that the objectives established by the NRC-approved FPP were satisfied. The team also reviewed selected licensee fire incident reports, combustible tracking logs, maintenance procedures, housekeeping inspection reports, and general employee training covering control of ignition sources and transient combustibles. These reviews were accomplished to ensure that the licensee had properly evaluated in-situ combustible fire loads, controlled hot-work activities, and limited transient fire hazards in a manner consistent with the plant administrative and FPP procedures. Additionally, the team toured the selected plant FA/FZs to observe whether programmatic procedures for limiting fire hazards, waste collection, housekeeping practices, and cleanliness conditions were being implemented consistent with the updated UFSAR, administrative procedures, and other FPP procedures. The specific documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

.03 Passive Fire Protection

a. Inspection Scope

For the selected FA/FZs, the team evaluated the adequacy of fire barrier walls, ceilings, floors, exterior roofing material, mechanical and electrical penetration seals, fire doors, fire dampers, and an electrical raceway fire barrier system (ERFBS). The team compared the installed configurations to the approved construction details, and supporting fire endurance test data, which established the ratings of fire barriers. The team also reviewed licensee evaluations of the non-standard fire barrier penetration seals for each of the selected FA/FZs. In addition, the team reviewed licensing bases documentation, such as NRC Safety Evaluation Reports (SERs) and deviations from NRC regulations, to verify that passive fire protection features met license commitments.

The team walked down accessible portions of the selected FA/FZs to observe material condition and the design adequacy of fire area boundaries to assess if they were appropriate for the fire hazards in the area. The team reviewed the installation, repair, and qualification records for a sample of penetration seals to ensure the seal material was of the appropriate fire rating. Additionally, the team reviewed that the as-built configurations met the engineering design, standard industry practices, and were either properly evaluated or qualified by appropriate fire endurance tests. Engineering change documentation, and relevant installation and test qualification records related to 3M

Interam ERFBS installed for protection of SSD circuits in the Component Cooling Water (CCW) pump room (FZ 5) were reviewed. This was accomplished to verify that the selected ERFBS met its design and licensing basis. In addition, a sample of completed surveillance and maintenance procedures for selected fire doors, fire dampers, and penetration seals were reviewed to ensure that these passive fire barrier features were properly inspected and maintained. The fire protection features included in the review are listed in the Attachment.

b. Findings

No findings of significance were identified.

.04 Active Fire Protection

a. Inspection Scope

The team reviewed the fire protection water supply system, operational valve lineups, cable routing information, and system availability associated with the electric motor-driven fire pump and the diesel engine-driven fire pump. Using operating and valve alignment procedures, team members toured selected fire pumps and portions of the fire main piping system to evaluate material condition, consistency of as-built configurations with engineering drawings, and to verify correct system valve lineups. The common fire protection water delivery and supply components were reviewed to assess if they could be damaged or inhibited by fire-induced failures of electrical power supplies or control circuits. In addition, the team reviewed periodic surveillance and operability flow test data for the fire pumps and fire main loop to assess whether the test program was sufficient to validate proper operation of the fire protection water supply system in accordance with its design requirements.

The team reviewed the fire detection system protecting the FA/FZs selected for review to assess the adequacy of the design and installation. This was accomplished by reviewing cable routing information, design drawings, ceiling beam location drawings, ceiling beam schedule drawings and NFPA 72E (code of record 1974 edition) for detector location requirements. The team also reviewed license documentation, such as NRC SERs and deviations from NRC regulations, to verify that active fire protection features met license commitments. The inspectors walked down the fire detection and alarm systems in the selected FA/FZs to evaluate the appropriateness of detection methods for the category of fire hazards in the areas relative to the NFPA 72E location requirements. Additionally, the inspectors reviewed the surveillance test procedures for the detection and alarm systems to determine compliance with UFSAR Section 9.5.1 and procedure FP-012, Fire Protection Systems and Minimum Equipment and Compensatory Actions, Rev. 11.

Fire hose and standpipe systems were evaluated from source to discharge device including NFPA 14 code compliance calculations performed by the licensee to demonstrate adequate flow, pressure, and water distribution. 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-plan strategies and FPP documents.

The team reviewed the fire brigade staging and dress-out areas to assess the operational readiness of fire fighting and smoke control equipment. The fire brigade personal protective equipment, self-contained breathing apparatuses (SCBAs) and SCBA cylinder refill capability were reviewed for adequacy and functionality. The team also reviewed operator and fire brigade staffing, fire brigade response reports, offsite fire department communications and staging procedures, fire fighting pre-plan strategies, fire brigade qualification training, and the fire brigade drill program procedures. Ten fire brigade response-to-drill scenarios and associated brigade drill evaluations/critiques that transpired over the last 12 months were reviewed.

The team reviewed the fire fighting pre-plan strategies for the selected FA/FZs and fire response procedures to verify that pertinent information was provided to fire brigade members to identify potential effects to plant and personnel safety, and to facilitate suppression of an exposure fire that could impact SSD capability. The team walked down the selected FA/FZs to compare the associated fire fighting pre-plan strategy drawings with as-built plant conditions and fire response procedures. This was done to verify that fire fighting pre-plan strategies and drawings were consistent with the fire protection features and potential fire conditions described in the FHA. The team also evaluated whether the fire response procedures and fire fighting pre-plan strategies for the selected FA/FZs could be implemented as intended. The documents included in the reviews are listed in the Attachment.

b. Findings

No findings of significance were identified.

.05 Protection From Damage From Fire Suppression Activities

a. Inspection Scope

The team performed document reviews for heating, ventilation, and air conditioning (HVAC) system drawings, configuration drawings for electrical raceways and safe shutdown components, building drain system drawings, and conducted in-plant walkdowns to verify that redundant trains of systems required for hot shutdown, where located in the same FA/FZ, were not subject to damage from fire suppression activities, or from the rupture or inadvertent operation of fire suppression systems. The team considered the effects of water, drainage, heat, hot gasses, and smoke that could potentially damage all redundant SSD trains, inhibit access to alternate shutdown equipment or performance of dedicated safe shutdown operator actions. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

.06 Post-Fire Safe Shutdown From Outside the Main Control Room (Dedicated Shutdown)

a. Inspection Scope

Methodology

The team reviewed the licensee's FPP as described in UFSAR Section 9.5.1, the SSA, DSPs, P&IDs, electrical drawings, and other supporting documents for postulated fires in FA A5, FZs 22 and 23. 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 procedures. The review included assessing whether hot and cold shutdown from outside the MCR could be implemented, and that transfer of control from the MCR to the dedicated shutdown control stations could be accomplished. This review also included verification that shutdown from outside the MCR could be performed both with and without the availability of offsite power.

Plant walkdowns were performed to verify that the plant configuration was consistent with that described in the SSA. These inspection activities focused on ensuring the adequacy of systems selected for reactivity control, reactor coolant makeup, reactor heat removal, process monitoring instrumentation and support systems functions. The team reviewed the systems and components credited for use during this shutdown method to verify that they would remain free from fire damage.

Operational Implementation

The team reviewed the training lesson plans for licensed and non-licensed operators to verify that the training reinforced the shutdown methodology in the SSA and DSPs for the selected FAs. The team also reviewed shift turnover logs and shift manning to verify that personnel required for SSD using the alternative shutdown systems and procedures were available on-site, exclusive of those assigned as fire brigade members.

The team reviewed the adequacy of procedures utilized for post-fire SSD and performed a walk-through of procedure steps to ensure the implementation and human factors adequacy of the procedures. The team also reviewed selected operator 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.

Time critical actions reviewed included: electrical power distribution alignment, establishing control at the dedicated shutdown control stations, establishing reactor coolant makeup, and establishing decay heat removal. The team reviewed and walked down applicable sections of the following fire response procedures:

- DSP-001, Alternate Shutdown Diagnostic
- DSP-002, Hot Shutdown Using the Dedicated/Alternate Shutdown System

The team also reviewed the periodic test procedures and test records of the alternative shutdown transfer capability, and instrumentation and control functions, to ensure the tests were adequate to verify the functionality of the alternative shutdown capability.

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 Motor Control Centers (MCCs). In addition, the team reviewed wiring diagrams for instrumentation located on the dedicated shutdown control stations to verify that necessary process monitoring was available as required by 10 CFR 50, Appendix R, Section III.L.

b. Findings

Operator Actions During Performance of DSP-002 did not Provide Sufficient Direction to Ensure that the DS Bus Remains Energized.

Introduction: The team identified a noncompliance with 10 CFR 50, Appendix R, Section III.L.3 for the licensee's failure to ensure that the Dedicated Shutdown (DS) Bus remains energized for a postulated fire in FA A5, FZ 22. The violation meets the criteria of NRC Enforcement Policy, "Interim Enforcement Policy Regarding Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48)" for enforcement discretion.

Description: For a fire in FA A5, FZ 22, procedure DSP-002, "Hot Shutdown Using the Dedicated/Alternate Shutdown System," would be utilized to safely shutdown the plant from the dedicated shutdown control stations. Step 4 of DSP-002 dispatches an operator to energize the DS Bus by performing Attachment 9. Step 2 of the attachment directs the operator to determine if the DS Bus is energized by offsite power. If the DS Bus is de-energized, then the operator is directed to energize the DS Bus by the Dedicated Shutdown Diesel Generator (DSDG). If the DS Bus is energized by offsite power, then the operator is directed to de-energize 4kV buses 1, 2 and 4 and 480V Bus 3 and then close the alternate feed to MCC-5. At this point in the procedure, performance of Attachment 9 would be complete and the operator would be free to leave the area and assist other operators. The team determined that if a loss of offsite power occurred subsequent to the performance of Attachment 9, there was no continuing procedural guidance directing the operators to later energize the DS Bus with the DSDG. This issue was further complicated because there would be no indication of the subsequent loss of offsite power to the operators absent someone checking the status of offsite power on the Ds bus.

Analysis: This issue is a performance deficiency because the licensee did not provide sufficient direction to the operators to ensure that the DS Bus remains energized for a fire in FA A5, FZ 22. This finding is more than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and it affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors assessed the finding using IMC 0609, Appendix F, Fire Protection SDP. The finding was assigned a high degradation rating because the dedicated shutdown procedure did not provide sufficient guidance to the operators. The SDP Phase 1 analysis concluded that a Phase 2 analysis was required. Based on the fire ignition frequency of the MCR cabinets, the probability of spurious actuations, and the probability of suppression (the MCR is staffed continuously), the team concluded that this item would not be associated with a finding of high safety significance (Red).

Enforcement: 10 CFR 50.48(b)(2) requires, in part, that all nuclear power plants licensed to operate prior to January 1, 1979, must satisfy the applicable requirements of Appendix R to this part, including specifically the requirements of Sections III.G, III.J, and III.O. Compliance with 10 CFR 50, Appendix R, Section III.L is considered necessary in order to satisfy the requirements of 10 CFR 50, Appendix R, Section III.G. Section III.L.3 states in part that the alternative shutdown capability shall be independent of the specific fire areas and shall accommodate post-fire conditions where offsite power is available and when offsite power is not available for 72 hours, and that procedures shall be in effect to implement this capability. Contrary to the above, on November 9, 2007, the inspectors identified that DSP-002 did not provide sufficient direction to the operators to ensure that the DS bus remains energized to accommodate post-fire conditions where offsite power is available and when offsite power is not initially available but later lost for a fire in FA A5, FZ 22. This issue was entered into the licensee's CAP as NCR 252018 and corrected prior to the inspectors leaving the site. DSP-002 was revised to stage an operator in the 4160V room to monitor the DS Bus voltage until the fire is out and the fire damage has been assessed.

No enforcement action is required for the above noncompliance because pursuant to the Commission's Enforcement Policy and NRC Manual Chapter 0305, under certain conditions fire protection findings at nuclear power plants that transition their licensing bases to 10 CFR 50.48(c) are eligible for enforcement and reactor oversight process (ROP) discretion. The Enforcement Policy and ROP also state that the finding must not be evaluated as Red.

Because the licensee committed, prior to December 31, 2005, to adopt NFPA 805 and change their fire protection licensing bases to comply with 10 CFR 50.48(c), the NRC is exercising enforcement discretion for this issue in accordance with the NRC Enforcement Policy, "Interim Enforcement Policy Regarding Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48)." Specifically, this issue would have been expected to be identified and addressed during the licensee's transition to NFPA 805, it was entered into the licensee's corrective action program and corrected, was not likely to have been previously identified by routine licensee efforts, was not willful, and was not associated with a finding of high safety significance.

.07 Circuit Analyses

a. Inspection Scope

This segment is suspended for plants in transition because a more detailed review of cable routing and circuit analysis will be conducted as part of the fire protection program transition to NFPA 805. However, a review of the licensee's preliminary cable routing information was used by the team to assess the adequacy of the licensee's fire response procedures in the selected fire areas. The routing information was based upon a list of safe shutdown components submitted by the inspectors.

b. Findings

No findings of significance were identified.

.08 Communications

a. Inspection Scope

The team reviewed the plant communications systems that would be relied upon to support safe shutdown, fire event notification, and fire brigade fire fighting activities. The team observed a radio check with the dedicated shutdown radios and fire brigade radios to ensure operability without use of the repeater. The team also reviewed selected fire brigade drill evaluation/critique reports 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 of significance were identified.

.09 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 observed a test verification of the emergency lighting adequacy in the battery room and Auxiliary Building lower hallway. 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 observed whether 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 included examination of whether 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 of significance were identified.

.10 Cold Shutdown Repairs

a. Inspection Scope

The team reviewed the licensee's SSA to determine if any repairs were necessary to achieve cold shutdown. Dedicated Shutdown Procedures DSP-008 through DSP-013, describe methods for repairing equipment, following a fire, needed to bring the Unit from hot standby to cold shutdown. The team inspected the fire damage repair kits and inventoried their contents in accordance with station procedure OST-922, Dedicated Shutdown Equipment Identification Audit, and verified that repair kits necessary to restore the Residual Heat Removal pumps along with their associated indications, as well as the remote operation of the Pressurizer Power Operated Relief Valves, and bulk cable reels were tagged and stored on-site for the sole purpose of damage control measures. The team also reviewed calibration test records for the temporary instrumentation used in conjunction with the damage control procedures.

b. Findings

No findings of significance were identified.

.11 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, or pumps, valves or electrical devices providing SSD functions or capabilities). The team reviewed selected items on the fire protection impairment log and compared them with the FAs/FZs selected for inspection. The compensatory measures that had been established in these areas/zones were compared to those specified for the applicable fire protection feature to verify that the risk associated with removing the fire protection feature from service was properly assessed and adequate compensatory measures were implemented in accordance with the approved FPP. Additionally, the team reviewed the licensee's short term compensatory measures (compensatory fire watches) to verify that they were adequate to compensate for a degraded function or feature until appropriate corrective action could be taken, and that the licensee was effective in returning the equipment to service in a reasonable period of time.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems

a. Inspection Scope

NCRs related to the HBR2 FPP, and the capability to successfully achieve and maintain the plant in a SSD condition following a plant fire, as well as selected fire brigade response, emergency / incidents, and fire safety inspection reports were reviewed. This review was conducted to assess the frequency of fire incidents and effectiveness of the fire prevention program and any maintenance-related or material condition problems related to fire incidents.

The team also reviewed other CAP documents, including completed corrective actions documented in selected NCRs, and operating experience program (OEP) documents to verify that industry-identified fire protection problems potentially or actually affecting HBR2 were appropriately entered into, and resolved by, the CAP process. Items included in the OEP effectiveness review were NRC Regulatory Issue Summaries (RISs), Information Notices (INs), Generic Letters (GL), industry or vendor-generated reports of defects and noncompliance under 10 CFR Part 21, and vendor information letters. In addition, the inspectors reviewed a sample of the FPP audits which the licensee performed in the previous one-year period to assess the types of findings that were generated and that the findings were appropriately entered into the licensee's CAP. The inspectors evaluated the effectiveness of the corrective actions for a sample of identified issues. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

4OA5 Other Activities

NRC GL 2006-03, Potentially Nonconforming Heymc and MT Fire Barrier Configurations

This inspection and generic issue review concerns GL 2006-03 (ADAMS Accession No. ML053620142) issued on April 10, 2006, which identified the potential inadequacy (thermal failure) of Heymc and MT ERFBS for protection of electrical and instrumentation cables and equipment that provide safe shutdown capability during a fire. On June 8, 2006 Progress Energy Carolinas submitted to the NRC a response letter to GL 2006-03 for HBR2 (ADAMS Accession No. ML061640136). The submitted documentation indicated that HBR2 had utilized Heymc ERFBS wrap to protect power cables to the "A" and "C" CCW pumps in FA C, FZ 5 but was replacing this wrap with a new ERFBS to provide a one-hour fire rating. The team's review of the newly installed 3M Interam ERFBS for protection of SSD circuits in the CCW pump room is discussed in section 1R.05 of this report. In addition, the team conducted on-site and in-office review of the significance of potential credible fires that could have affected the previously installed Heymc ERFBS. The inspectors reviewed CAP documents and

engineering change documents associated with the Heymc ERFBS replacement. The inspectors also reviewed the licensee's safety significance analysis for the replaced Heymc with consideration for the fire loading characteristics and automatic fire detection and suppression system design. The team determined that this generic issue had very low safety significance and had not presented an immediate safety concern because the affected FZ had installed automatic fire detection and suppression systems that would likely detect and control an exposure fire prior to it breaching the previous Heymc fire wrap enclosures. Any further evaluation of this issue will be conducted pursuant to review of the licensee's GL 2006-03 response and subsequent license amendment approval.

4OA6 Meetings, Including Exit

On November 9, 2007, the lead inspector presented the inspection results to Mr. T. Walt and other members of his staff. The licensee acknowledged the findings. Proprietary information is not included in this report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

B. Gerwe, Fire protection Engineer
F. Modlin, Safe Shutdown Engineer
G. Sanders, Licensing
J. Ertman, Corporate Fire Protection Supervisor
R. Hightower, Equipment Performance Manager
S. Farmer, Engineering Manager
T. Tovar, Operations manager
T. Walt, Site Vice President
W. Wonka, Operations

NRC personnel

E. Morris, Resident Inspector
R. Haggar, Senior Resident Inspector
C. Payne, Chief, Engineering Branch 2, Division of Reactor Safety, Region II

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened/Closed

None

Discussed

GL 2006-03, Potentially Nonconforming Hemyc and MT Fire Barrier Configurations

LIST OF DOCUMENTS REVIEWED

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

Fire Barriers Floors/Walls/Ceiling Identification

Main Control Room Roofing
Concrete Masonry Block Wall

Description

FZ 22 to Exterior
FZ 25A to FZ5

Fire Damper Identification

FD-21
FD-49
FD-50
FD-66
FD-67
FD-76
FD-77

Description

FZ 5 to FZ25A
FZ 23 to FZ20
FZ 23 to FZ20
FZ22 to FZ18
FZ22 to FZ18
FZ 7 to FZ25A
FZ 7 to FZ25A 3-Hour Rated
Damper-Closed/Blanked Off

Fire Door Identification

FDR-4
FDR-25
FDR-49

Description

FZ 7 to FZ 25A
FZ 23 to FZ 25C Stairwell
FZ 22 to FZ 25C

Fire Barrier Penetration Seal Identification

5251
5252
6393
6403

Description

FZ 23 to FZ 25E, Thru-wall Silicone
Foam for Electrical Bus Duct (Type
PS-1)
FZ 23 to FZ 25E, Thru-wall Silicone
Foam for bus duct (Type PS-1)
FZ 22 to FZ 25E, Thru-wall Silicone
Foam for conduit (Type PS-6)
FZ 23 to FZ 25E, Thru-wall Silicone
Foam for conduit (Type PS-6)

ERFBS Identification

3M Interram E54A Barrier

Description

FZ 5, One-Hour Rated 3-M Interam
ERFBS For Component Cooling
Pumps "A" and "C" Power Supply
Raceways

Drawings

B-190628, Sht. C585, Control Wiring Diagram for Motor Driven Firewater Pump, Rev. 17
 B-190628, Sht. 1018, Control Wiring Diagram for Engine Driven Firewater Pump, Rev. 6
 B-190628, Control Wire Diagram, Rev. 15
 B-190628, CST Level Indication Control Wiring Diagram, Rev. 2
 B-190634, Sht. C2585A, Cable & Conduit List from 480V Swgr. Bus 3 to Motor Driven Firewater Pump Motor, Rev. 5
 B-190634, Sht. C2586A, Cable & Conduit List from MCC No. 7 to Engine Driven Firewater Pump Controller, Rev. 3
 Calc # 89-0077, Impact on HBR Appendix R Analysis of Reducing AFW Flow to 240 GPM, Rev. 2
 CRC-5007, Telephone System Cable and Block Schematic
 G-190181A, Turbine Building Ground Floor Plan, Rev. 3
 G-190182A, Turbine Building Mezzanine Floor Plan, Rev. 12
 G-190183A, General Arrangement Turbine Building Operating Floor Grid Layout, Rev. 0
 G-190190A, General Arrangement Reactor Aux. Bldg. Sections & Control Room Grid Layout, Rev. 2
 G-190190A, General Arrangement Reactor Auxiliary Building Plans, Rev. 2
 G-190305, HVAC Reactor Auxiliary Building & Turbine Building Plan, Sheet No. 2, Rev. 0
 G-190400, Reactor Auxiliary Building Masonry Plan, Sheet No. 1, Rev. 23
 G-190404, Reactor Auxiliary Building Masonry Sections, Sheet No. 1, Rev. 17
 G-190404, Reactor Auxiliary Building Masonry Sections, Sheet No. 2, Rev. 3
 G-190637, Turbine Generator Area Ground Floor Conduit & Grounding Sh1.
 G-190837, Reactor Auxiliary Building Elevator Framing, Sheets Nos. 1 & 2, Rev. 1
 HBR2-10005, Wiring Diagram for Fire Alarm Console, Rev. 2
 HBR2-10291, P/A Communication System Single Line Drawing for PP-48, Rev. 1
 HBR2-10432, Turbine Generator Area EL. 226' – 0" Cable Tray Layout (NW)
 HBR2-10433, Turbine Generator Area EL. 226' – 0" Cable Tray Layout
 HBR2-11390, Appendix R and Station Blackout Safe-Shutdown Analysis Flowpath/Boundary Diagram, Sh. 13, Rev. 8
 HBR2-11390, Appendix R and Station Blackout Safe-Shutdown Analysis Flowpath/Boundary Diagram, Sh. 7, Rev. 7
 HBR2-11390, Appendix R and Station Blackout Safe-Shutdown Analysis Flowpath/Boundary Diagram, Sh. 27, Rev. 3
 HBR2-11390, Appendix R and Station Blackout Safe-Shutdown Analysis Flowpath/Boundary Diagram, Sh. 28, Rev. 5
 HBR2-11390, Appendix R and Station Blackout Safe-Shutdown Analysis Flowpath/Boundary Diagram, Sh. 26, Rev. 4
 HBR2-11390, Appendix R and Station Blackout Safe-Shutdown Analysis Flowpath/Boundary Diagram, Sh. 25, Rev. 4
 HBR2-11390, Appendix R and Station Blackout Safe-Shutdown Analysis Flowpath/Boundary Diagram, Sh. 40C, Rev. 1
 HBR2-11390, Appendix R and Station Blackout Safe-Shutdown Analysis Flowpath/Boundary Diagram, Sh. 5, Rev. 5
 HBR2-11390, Appendix R and Station Blackout Safe-Shutdown Analysis Flowpath/Boundary Diagram, Sh. 4, Rev. 5

HBR2-11390, Appendix R and Station Blackout Safe-Shutdown Analysis Flowpath/Boundary Diagram, Sh. 15, Rev. 16
 HBR2-11390, Appendix R and Station Blackout Safe-Shutdown Analysis Flowpath/Boundary Diagram, Sh. 31, Rev. 8
 HBR2-11390, Appendix R and Station Blackout Safe-Shutdown Analysis Flowpath/Boundary Diagram, Sh. 34, Rev. 5
 HBR2-11390, Appendix R and Station Blackout Safe-Shutdown Analysis Flowpath/Boundary Diagram, Sh. 36, Rev. 10
 HBR2-11390, Appendix R and Station Blackout Safe-Shutdown Analysis Flowpath/Boundary Diagram, Sh. 37, Rev. 12
 HBR2-11390, Appendix R and Station Blackout Safe-Shutdown Analysis Flowpath/Boundary Diagram, Sh. 40A, Rev. 0
 HBR2-11390, Appendix R and Station Blackout Safe-Shutdown Analysis Flowpath/Boundary Diagram, Sh. 40B, Rev. 0
 HBR2-11390, Appendix R and Station Blackout Safe-Shutdown Analysis Flowpath/Boundary Diagram, Sh. 14, Rev. 7
 HBR2-11390, Appendix R and Station Blackout Safe-Shutdown Analysis Flowpath/Boundary Diagram, Sh. 2, Rev. 4
 HBR2-11390, Appendix R and Station Blackout Safe-Shutdown Analysis Flowpath/Boundary Diagram, Sh. 3, Rev. 3
 HBR2-7507, Wiring Interconnection Diagram for Fire Detection System Train A, Rev. 4
 HBR2-7508, Wiring Interconnection Diagram for Fire Detection System Train B, Rev. 6
 HBR2-7508, Wiring Interconnection Diagram for Fire Detection System Train B, Rev. 6
 HBR2-8255, Sht. 1, Fire Protection System Intake Structure Flow Diagram, Rev. 14
 HBR2-8255, Sht. 2, Fire Protection System Flow Diagram, Rev. 30
 HBR2-8255, Sht. 6, Fire Protection System Flow Diagram, Rev. 20
 HBR2-8319, Sht. 50, Fire Damper Installation, Rev. 0
 HBR2-8319, Sht. 69, Fire Damper Installation, Rev. 0
 HBR2-8319, Shts. 1 & 3, Fire Damper Locations, Rev. 1
 HBR2-8319, Sht. 59, Fire Damper Installation, Rev. 2
 HBR2-8319, Sht. 51, Fire Damper Installation, Rev. 0
 HBR2-8319, Sht. 23, Fire Damper Installation, Rev. 1
 HBR2-9716, Series, Fire Barrier Penetrations, Rev. 9
 HBR2-9717, Fire Area/Zone Locations Turbine Building Ground Floor Plan, Sh.6, Rev. 0
 HBR2-9717, Fire Area/Zone Locations Turbine Building Mezzanine Floor Plan, Sh.5, Rev. 1
 HBR2-9717, Fire Area/Zone Locations Turbine Building Ground Floor Plan, Sh.4, Rev. 3
 RNP-M/MECH-1712, Robinson Nuclear Plant Appendix R Mechanical Basis, Rev. 5

Procedures

AP-010, Housekeeping Instructions, Rev. 43
 APP-044, Fire Alarm Console (FAC), Rev. 16
 CM-111, Limitorque Limit Switch and Torque Switch Maintenance, Rev. 47
 DSP-001, Alternate Shutdown Diagnostic, Rev. 9
 DSP-002, Hot Shutdown Using the Dedicated/Alternate Shutdown System, Rev. 36
 DSP-007, Cold Shutdown Using the Dedicated/ Alternate Shutdown System, Rev. 22
 DSP-008, RHR Pump Power Repair Procedure, Rev. 9
 DSP-009, RHR System Flow Indication Repair Procedure, Rev. 2

DSP-011, RHR System Temperature Indication Repair Procedure, Rev. 2
 DSP-012, Pressurizer PORV Control/Power Repair Procedure, Rev. 11
 DSP-013, RHR Flow Control Valves Repair Procedure, Rev. 5
 DSP-015, Hot Shutdown From the Control Room with a Fire in the Turbine Building, Rev. 3
 EGR-NGGC-0102, Safe Shutdown/Fire Protection Review, Rev. 6
 EPTSC-00, Activation and Operation of the Technical Support Center, Rev. 5
 FIR-NGGC-0003, Hot Work Permit, Rev. 2
 FP-001, Fire Emergency, Rev. 55
 FP-001, Fire Emergency, Rev. 55
 FP-002, Fire Report, Rev. 15
 FP-003, Control of Transient Combustibles, Rev. 23
 FP-004, Duties of a Fire Watch, Rev. 14
 FP-006, Handling of Flammable Liquids and Gases, Rev. 3
 FP-010, Housekeeping Controls, Rev. 25
 FP-012, Fire Protection Systems and Minimum Equipment and Compensatory Actions, Rev. 11
 FP-013, Fire Protection Systems Surveillance Requirements, Rev. 10
 FP-014, Control of Fire Barrier Penetrations, Rev. 10
 OMM-001-12, Minimum Equipment List and Shift Relief, Rev. 50
 OMM-002, Fire Protection Manual, Rev. 39
 OMM-007, Equipment Inoperable Record, Rev. 72
 OMM-020, Fire Protection List, Rev. 6
 OMM-043, Verification and Validation, Rev. 15
 Operations Training, System Description SD-041, Fire Water System, Rev. 3
 OST-602, Unit No. 2 Fire Water System Flowpath Verification (Monthly) and Valve Cycling (Annual), Rev. 43
 OST-611-12, Attachment 10.1, Detector and Pull Station Locations, Rev. 4
 OST-922, Dedicated Shutdown Equipment Identification Audit, Rev. 24
 SD-041, Operations Training, System Description, Fire Water System, Rev. 3
 SP-771, Verification and Documentation of Dedicated Shutdown Emergency Lighting Adequacy, Rev. 1
 TPP-219, Fire Protection Training Program, Rev. 14

Completed Surveillance Test Procedures and Test Records

Emergency Lighting System Health Report, 11/06/07
 Exide Electronics F-100 Emergency Lighting Systems data sheet
 OST-603, Motor Driven Fire Water Pump and Engine Driven Fire Water Pump Test, 10/07/2007
 OST-610, Unit 2 Portable Fire Extinguishers, Fire Hose Stations & Houses (Monthly), 10/14/2007
 OST-611-12, Low Voltage Fire Detection and Actuation System Zones 22 & 23, 10/12/2006
 OST-611-3, Low Voltage Fire Detection and Actuation System Zones 6 & 7, 09/13/2007
 OST-629, Zone 23 Dry Standpipe System Annual Functional Test, 08/10/2007
 OST-632, Unit 2 Fire Suppression Water System Flow Test, (3-Year), 07/07/2005
 OST-633, Interior Fire Hose Hydrostatic Test, 11/24/2005
 OST-639, Revision 28, Fire Equipment Inventory (Monthly)
 OST-647, Exterior Fire Hose Station and Hose House, Hydrostatic Testing, Flushing and Valve Cycling (Annual), 3/28/2007
 OST-906, Emergency Control Station Test, 04/30/2007
 OST-906, Emergency Control Station Test, 11/22/2005

WO 00690071, Replace Emergency Batteries in FDAP-A1, 9/23/2006
 WO 00053383-03, Engineering Toning Cable

Emergency Lighting Test Records

| | | | |
|------------|-------------|-------------|------------|
| WO# 64227 | WO# 1029998 | WO# 960300 | WO# 488360 |
| WO# 607509 | WO# 960300 | WO# 885081 | WO# 500002 |
| WO# 64216 | WO# 885081 | WO# 1024536 | WO# 64221 |
| WO# 525903 | WO# 1069006 | WO# 904216 | |
| WO# 509265 | WO# 960296 | WO# 509265 | |

Calculations

EDP-004, Distribution Panel "A", Rev. 16
 EDP-004, Distribution Panel "B", Rev. 16
 EE-90-104, Generic Evaluation of HVAC Fire Damper and Fire Door Installation Discrepancies, Rev. 0
 Engineering Disposition 68370, Change In Risk Significance Due to Replacement of Hemyc Wrapped Component Cooling Water Cables, Rev. 0
 ESR 00-00042, Implementing Activity Description, Rev. 0
 ESR 98-0052B, Smoke Detector Sensitivity Testing, Rev. 0
 ESR 00-0042, Fire Protection Program Screening Evaluation for Changes to the Plant's Safe Shutdown Analysis and Safe Shutdown Procedures, Rev. 0
 FPP-RNP-100, 10 CFR 50, Appendix R Long-Term Compliance Safe Shutdown Component Index
 FPP-RNP-150, 10 CFR 50, Appendix R Long-Term Compliance Safe Shutdown Cable Schedule
 FPP-RNP-300, 10 CFR 50, Appendix R Long-Term Compliance, Section III.G Safe Shutdown Component/Cable Separation Analysis Volume 2 Fire Zone Reports
 FPP-RNP-300, 10 CFR 50, Appendix R Long-Term Compliance, Section III.G Safe Shutdown Component/Cable Separation Analysis Volume 1 Fire Zone Reports
 REG-NGGC-0002, Fire Protection Program Screening Evaluation, Rev. 3
 RNP-6611-S-02, Component Cooling Pump Room South Wall, dated 01/09/1985
 RNP-M/BMRK-1006, Code Compliance Evaluation NFPA 72E, Rev. 3
 RNP-M/MECH-1676, Evaluation of Non-Standard Penetration Seals in Fire Zone 5, Rev. 1
 RNP-M/MECH-1697, Code Compliance Evaluation NFPA 72E Code Compliance Variances, Rev. 1
 RNP-M/BMRK-1010, Code Compliance Evaluation NFPA 14, Rev. 2
 RNP-M/MECH-1689, Evaluation of Non-Standard Penetration Seals in Fire Zone 18, Rev. 1
 RNP-M/BMRK-1005, Code Compliance Evaluation NFPA 72D, Rev. 0
 RNP-M/MECH-1678, Evaluation of Non-Standard Penetration Seals in Fire Zone 7, Rev. 2
 RNP-M/BMRK-1003, Code Compliance Evaluation NFPA 80-Standard for Fire Doors and Windows, Rev. 1
 RNP-M/MECH-1694, Evaluation of Non-Standard Penetration Seals in Fire Zone 23, Rev. 1
 RNP-M/BMRK-1014, Code Compliance Evaluation NFPA 72-National Fire Alarm Code, Rev. 0
 RNP-M/MECH-1693, Evaluation of Non-Standard Penetration Seals in Fire Zone 22, Rev. 1
 RNP-M/BMRK-1002, Code Compliance Evaluation NFPA 30-Unit 2 Diesel Fuel Oil Tanks, Rev. 1
 RNP-M/MECH-1691, Evaluation of Non-Standard Penetration Seals in Fire Zone 20, Rev. 1
 RNP-RA/01-0061, Revision To 10 CFR 50, Appendix R Separation Analysis

Design Changes

DCN-795E-6, Bill of Material for Component Cooling Pump Room Masonry Wall, 01/10/1985
 Engineering Change 063687, Replace Existing Heymc Wrap, Rev 7
 Engineering Change 63085R8, Appendix R Emergency Lighting Modification
 Facility Change Traveler Number 03-017 (MNT-NGGC-0006, Rev.), Plant Roof Refurbishment
 Project, Control Room Roof, 10/27/2003

Fire Protection Pre-Plans and Critiques

Fire Protection Pre-Plan, Section 8.11 Inside Auxiliary Operator (IOA) Office, OMM-003, Rev. 47
 Fire Protection Pre-Plan, Section 8.30, Control Room, OMM-003, Rev. 47
 Fire Protection Pre-Plan, Section 8.31 Hagan Room/CCW Surge Tank Room, OMM-003, Rev. 47
 Fire Protection Pre-Plan, Section 8.42, Turbine Building/Ground Floor, OMM-003, Rev. 47
 Fire Protection Pre-Plan, Section 8.52, Turbine Building/Mezzanine, OMM-003, Rev. 47
 Fire Protection Pre-Plan, Section 8.53, 4KV Switchgear Room, OMM-003, Rev. 47
 Fire Drill Critiques, for the Period 07/27/2006 to 06/28/2007

Applicable Codes and Standards

Fire Protection Handbook, 17th Edition
 NFPA 30, Flammable and Combustible Liquids Code, 1977 Edition
 NFPA 14, Installation of Standpipe and Hose System, 1974 Edition
 NFPA 80, Fire Doors and Windows, 1975-1993 Editions
 NFPA 90A, Installation Air Conditioning and Ventilating Systems, 1989 Edition
 NFPA 805, Performance-Based Standard for Fire Protection for Light Water Reactor Electric
 Generating Plants, 2001 Edition
 NFPA 72E, Standard on Automatic Fire Detectors, 1974 Edition
 NFPA 72D, Standard for the Installation, Maintenance, and Use of Proprietary Protection
 NUREG-1552, Supplement 1, Fire Barrier Penetration Seals in Nuclear Power Plants
 OSHA Standard 29 CFR 1910, Occupational Safety and Health Standards
 Protection Service, Third Edition, 08/27/93
 Signaling Systems, 1975 and 1986 Editions
 Underwriters Laboratory Standard 555, Standard for Fire Dampers and Ceiling Dampers
 Underwriters Laboratory Standard 263, Fire Resistance Directory, Design No. U904, 3-HR. Fire
 Resistance Rating for Masonry Wall
 Underwriters Laboratory Certification TGFU.R13930, Kemper Roof System, Class A, 10/23/2003
 Underwriters Laboratory Standard 401, Standard for Portable Spray Hose Nozzles for Fire

Technical Manuals and Vendor Information

Kemper System, Kempersol V210 Roofing System Properties Data-sheets, 9/2004
 PCI-Promatec Fact Sheet, RE: USNRC Information Notice IN 95-52, Supplement 1, 3M Interam
 Fire Barriers, 2/5/1996
 PCI-Promatec, Procedure QCP-2002R, Installation Inspection of 3M Interam One Hour Fire
 Protective Wrap Systems For Steel Conduit and Boxes, Issue B, 7/21/2006
 Specification Sheet for Akron Adjustable Turbo-Jet Fire Hose Nozzle, 1/19.2005
 Specification Sheet and User Guide for Super Vac Electric Ventilators, PS Series, 3/12/2003
 Specification Sheet for Kidde Fire Fighting - Angus Red Chief Fire Hose, 2007

Technical Manual 728-563-05, External Wiring Series DCF & DCM Fire Pump Controller 6965N, Rev. 2

Technical Manual for Power Sonic Rechargeable Sealed Lead-Acid Battery, PS-12180, 06/1998

Licensing Basis Documents

Carolina Power & Light Company letter to NRC, Fire Protection Modifications - Additional Information, 04/02/1979

Carolina Power & Light Company letter to NRC, Revision to 10 CFR 50, Appendix R Separation Analysis, 5/31/2001

HBR2 Letter to NRC, Response to NRC Generic Letter 2006-03, "Potentially Nonconforming Heymc and MT Fire Barrier Configurations," 6/8/2006

HBR2 Updated FSAR, Appendix 9.5.1A, Fire Hazards Analysis, Revs. 15 through 20

HBR2 Updated FSAR, Section 9.5.1, Fire Protection System, Revs. 15 through 18

NRC letter to Carolina Power & Light Company, Exemption From Requirements to Certain Portions of Appendix R to 10 CFR50, 10/25/1984

NRC letter to Carolina Power & Light Company, Exemption From Requirements to Certain Portions of Appendix R to 10 CFR50, 11/25/1983

NRC letter to Carolina Power & Light Company, Exemption From Certain Portions of Appendix R to 10 CFR50, 11/13/1981

NRC letter to Carolina Power & Light Company, H. B. Robinson electric Plant, Unit 2, RE: 10 CFR 50, Appendix R Separation Analysis and Fire Protection Exemptions, 9/5/2001
Supplemental Safety Evaluation Report for Appendix R

Audits and Self Assessment Reports

Fire Protection Assessment Report, R-FP-06-01, 7/18/2006

Fire Protection Program Health Report, 11/01/2005, 10/02/2006, and 01/25/2007

Other Documents

B-190634, Cable and Conduit List, Rev. 2

Combustible Item Walk Down Sheets, FP-003, Attachment 10.8 for Period September 17, 2006 through September 4, 2007

Combustible Tracking Logs for Selected Fire Zones, FP-003, Attachment 10.3 for Period April 22, 2002 through September 17, 2007

DSP-002-BD, DSP-002 Basis Document, Rev. 36

DSP-015-BD, Basis Document, Hot Shutdown from the Control Room with a Fire in the Turbine Building, Rev. 3

Engineering Change 58657R13, Appendix R Pressurizer PORV & Charging Pump Make-up Modification

Engineering Change 51614R6, Backup IA for Charging Pumps

Fire Endurance Test of 3M Interam Mat Fire Protective Envelopes, 11/9/1995

Fire Incident Reports for Selected Fire Zones, FP-002, Attachment 10.2 for Period March 30, 2005 through October 31, 2006

Fire Impairment Log, for Period 09/10/ 2006 through 09/10/2007

Fire Brigade Tabletop Scenario 56, Unit-2 Control Room, Rev. 0

FPP-RNP-300, 10CFR50, Appendix R, Section III.G, Safe Shutdown Component Cable Separation Analysis, Rev.8

GL 2006-03, Potentially Nonconforming Hemyc and MT Fire Barrier Configurations
 IN 2007-17, Fires at Nuclear Power Plants Involving Inadequate Fire Protection Administrative and Design Controls, 5/3/2007
 IN 1995-52, Fire Endurance Test Results for Electrical Raceway Fire Barrier Systems Constructed From 3M Company Interam Fire Barrier Material, 11/14/1995
 IN 2007-26, Combustibility of Epoxy Floor Coatings at Commercial Nuclear Power Plants, 8/13/07
 IN 2005-07, Results of Hemyc Electrical Raceway Fire Barrier System Full Scale Fire Testing, 4/1/2005
 IN 2007-19, Fire Protection Equipment Recalls and Counterfeit Notices, 5/21/2007
 JPM IP-005, Locally Establish AFW Flow to "A," "B," and "C" S/G's from the SDAFW Pump and Control S/G Levels and Pressures IAW EPP-1 and EPP-1, Attachment 1, Rev. 8
 JPM IP-020, Establish Service Water Using DSP-002, Att. 2, Electrical Operator Actions, Rev. 8
 JPM IP-040, Verify Natural Circulation (Outside Control Room), Rev. 1
 JPM IP-128, Energize the DS Bus Using DSP-002, Attachment 9, Rev. 0
 OL001, Adverse Condition Investigation Form (CAP-NGGC-0220-3-14, Attachment 3), For Action Request 155332, due date 8/31/2005
 RNP Unit 2 Operating Shift Logs Regarding Flammable/combustible Liquid Spills and Flammable Gas Leaks for Period October 15, 2006 through October 18, 2007
 U. S. Consumer Product Safety Commission, Release #07-136, Digital Security Controls Recalls Smoke Detectors that Could Fail to Warn of a Fire, 3/22/2007
 Weekly Fire Protection Housekeeping Inspections, FP-010, Attachment 10.2 for Period June 29, 2007 through October 12, 2007
 Work Order 690071, Replace Batteries in Panel FDAP-A1, 08/17/2006

Problem Investigation Process (PIP) Reports Generated as a Result of This Inspection

250747, Review OMM-003 Fire Pre-Plans for Enhancements Related to Brigade Fire Attack Strategies
 251253, Enhance FP-003, Att. 10.3 to Include Detection Zone 6 in FZ 25A
 251359, Enhance OMM-003, Sec. 8.31.4 for Hagan Room to Identify "A Fire in this Area May Result In the Loss of the Motor Driven Fire Pump"
 251988, Locked Valves Isn't Tested to Ensure it will Unlock
 252012, Vaulted Shift Turnover Checklist not Complete
 252018, Operator Actions During Performance of DSP-002
 252105, Unit 2 to Unit 1 Control Room Communications During DSP-015
 252140, Radio Communications for Dsp-015
 252199, Clarify 10 CFR 50, Appendix R, Exemption Applicability
 252232, Loss of CST Level Indication for a Fire in the Turbine Building
 253823, ELS Plastic Lens Issue

Other Corrective Action Documents (PIPs) Reviewed During This Inspection

155332, Indeterminate Rating of Heymc Fire Wrap
 157164, Grass Fire Caused by Sparks from Work Activities
 205333, Manual Operator Actions to be Taken in the Event of a Fire were not Approved by the NRC prior to Implementation

233389, Operating Experience (OE) Item Evaluation, NRC IN-2007-19, Fire Protection
Equipment Recalls and Counterfeit Notices

243083, Operating Experience (OE) Item Evaluation, NRC IN-2007-26, Combustibility of Epoxy
Floor Coatings at Nuclear Power Plants

81407, Evaluation of Roving Continuous Fire Watch Criteria in Plant Procedures FP-012 and
FP-004, with NRC 96TIA 008

96074, Adverse Condition Investigation CAP-NGGC-0200-3-7, for ACR93-122 Involving “Fog
Only” Electrically Safe Fire Hose Nozzles

LIST OF ACRONYMS

| | |
|-------|--|
| AB | Auxiliary Building |
| AFW | Auxiliary Feedwater |
| CAP | Corrective Action Program |
| CCW | Component Cooling Water |
| CFR | Code of Federal Regulation |
| CP&L | Carolina Power & Light |
| CST | Condensate Storage Tank |
| DS | Dedicated Shutdown |
| DSDG | Dedicated Shutdown Diesel |
| DSP | Dedicated Shutdown Procedure |
| EL | Elevation |
| ELU | Emergency Lighting Unit |
| ERFBS | Electrical Raceway Fire Barrier System |
| FA | Fire Area |
| FHA | Fire Hazards Analysis |
| FPP | Fire Protection Program |
| FZ | Fire Zone |
| GL | Generic Letter |
| HBR2 | H. B. Robinson Unit 2 |
| HVAC | Heating, Ventilation, and Air Conditioning |
| IMC | Inspection Manual Chapter |
| IN | Information Notice |
| IP | Inspection Procedure |
| IPEEE | Individual Plant Examination for External Events |
| MCC | Motor Control Center |
| MCR | Main Control Room |
| NCR | Non-Conformance Report |
| NFPA | National Fire Protection Association |
| NRC | U. S. Nuclear Regulatory Commission |
| OEP | Operating Experience Program |
| OSHA | Occupational Safety and Health Administration |
| P&IDs | Piping and Instrumentation Drawings |
| RIS | Regulatory Issue Summary |
| 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 |
| VAC | Volts Alternating Current |
| WO | Work Order |