UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

September 26, 2008

Mr. David A. Baxter
Site Vice President
Duke Power Company, LLC
d/b/a Duke Energy Carolinas, LLC
Oconee Nuclear Station
7800 Rochester Highway
Seneca, SC 29672

SUBJECT: OCONEE NUCLEAR STATION – NRC TRIENNIAL FIRE PROTECTION INSPECTION REPORT 05000269/2008007, 05000270/2008007, AND 05000287/2008007

Dear Mr. Baxter:

On August 14, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Oconee Nuclear Station Units 1, 2, and 3. The enclosed inspection report documents the inspection results which were discussed on August 14, 2008, with Mr. R. M. Glover and other 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 licenses. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel. Based on the results of this inspection, no findings of significance were identified.

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 (PARS) 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/

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

Docket Nos.: 50-269, 50-270, 50-287
License Nos.: DPR-38, DPR-47, DPR-55

Enclosure: NRC Triennial Fire Protection Inspection Report 05000269/2008007, 05000270/2008007, 05000287/2008007 w/Attachment: Supplemental Information

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Letter to David A. Baxter from Rebecca L. Nease, dated

SUBJECT: OCONEE NUCLEAR STATION – NRC TRIENNIAL FIRE PROTECTION INSPECTION REPORT 05000269/2008007, 05000270/2008007, AND 05000287/2008007

Distribution w/encl:
L. Olshan, NRR (PM: OCO)
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PUBLIC
Senior Resident Inspector, Oconee

X PUBLICLY AVAILABLE ☐ NON-PUBLICLY AVAILABLE ☐ SENSITIVE X NON-SENSITIVE

ADAMS: X☐ Yes ACCESSION NUMBER:____ **_/ra: Nease 9/25/2008/**SUNSI REVIEW COMPLETED

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DATE	9/16/2008	9/8/2008	9/9/2008	9/25/2008	9/5/2008	9/26/2008	9/12/2008
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Enclosure

U. S NUCLEAR REGULATORY COMMISSION (NRC)

REGION II

Docket Nos:	50-269, 50-270, 50-287
License Nos:	DPR-38, DPR-47, DPR-55
Report Nos:	05000269/2008007, 05000270/2008007, 05000287/2008007
Licensee:	Duke Power Company, LLC
Facility:	Oconee Nuclear Station, Units 1, 2, and 3
Location:	7800 Rochester Highway Seneca, SC 29672
Dates:	July 21 - 25, 2008 (week 1) August 11 – 14, 2008 (week 2)
Inspectors:	R. Rodriguez, Senior Reactor Inspector (SRI) (Team Lead) R. Fanner, Reactor Inspector (RI) N. Merriweather, SRI K. Miller, RI in Training G. Wiseman, SRI
Accompanying Personnel:	R. Langstaff, SRI, NRC Region III (Week 2 only) M. Riley, Summer Intern, NRC Region II (Week 1 only) W. Rogers, Senior Reactor Analyst (Pre-inspection visit to site July 1-3, 2008)
Approved by:	Rebecca L. Nease, Chief Engineering Branch 2 Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000269/2008-007, 05000270/2008-007, 05000287/2008-007; 07/21 - 25/2008 and 8/11 - 14/2008; Oconee Nuclear Station, Units 1, 2, and 3; Fire Protection.

This report covers an announced two-week triennial fire protection inspection by a team of five specialist inspectors (including one inspector in training), which were 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 Oconee Nuclear Station (ONS) fire protection program (FPP). The team selected three fire zones (FZs) for detailed review to examine the licensee's implementation of the FPP. The three FZs chosen were selected based on available risk information analyzed in office and onsite by a Senior Reactor Analyst from Region II, results of prior NRC triennial fire protection inspections, and data obtained during plant walk downs to evaluate ignition sources and their potential impact to safe shutdown (SSD) equipment. Section 71111.05-05 of the IP specifies a minimum sample size of three fire areas/zones. Detailed inspection of these three FZs fulfills the procedure completion criteria. The three FZs selected were:

- FZ 89, Unit 3 Equipment Room, Elevation 796 ft of the Auxiliary Building, Rooms 354 and 354A
- FZ 101, Unit 3 Cable Spreading Room, Elevation 809 ft of the Auxiliary Building, Rooms 450, 450A, 450B, 453 and 454
- FZ 112, Unit 3 Control Room, Elevation 822 ft of the Auxiliary Building, Rooms 550 thru 560

The inspection team conducted a review of portions of the Fire Protection Program against applicable NRC requirements including Title 10 of the Code of Federal Regulation (CFR) Part 50.48 (hereafter referred to as 10 CFR 50.48); 10 CFR 50, Appendix R; commitments to Appendix A of Branch Technical Position (BTP) Auxiliary and Power Conversion Systems Branch (APCSB) 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants;" NFPA codes; and related NRC Safety Evaluation Reports (SERs). The team also reviewed the licensee's Engineering Support Program (ESP) for Fire Protection and their Design Basis Specification for Fire Protection. The specific documents reviewed are listed in the Attachment.

.01 Fire Protection of Safe Shutdown Capabilities

a. Inspection Scope

For the selected FZs, the team evaluated the fire event history, the potential for fires, the combustible fire load characteristics, and the potential exposure fire severity. The team reviewed the licensee's transient fire load calculation, Engineering Support Program (Attachment 9, "Combustible Loading Methodology", Attachment 10, "Fire Protection Letters of Policy", and Attachment 12, "Reported Fire Events"); combustible/chemical

inventory reports; selected fire emergency reports; generic plant access fire protection training; and selected portions of the FPP administrative procedures that establish and implement controls and practices to prevent fires and to control the storage of permanent and transient combustible materials and ignition sources. These reviews were conducted to assess the effectiveness of the fire prevention program and to identify any maintenance or material condition problems related to fire incidents. The documents reviewed are listed in the Attachment.

The team walked down the selected plant FZs to observe: (1) the material condition of fire protection systems and equipment; (2) the storage of permanent and transient combustible materials; and (3) the licensee's implementation of the programmatic procedures for limiting fire hazards, combustible waste collection, housekeeping practices, and cleanliness conditions. These reviews were accomplished to ensure that the licensee was maintaining the fire protection systems, had properly evaluated in-situ combustible fire loads, controlled hot-work activities, and limited transient fire hazards consistent with the updated final safety analysis report (UFSAR), administrative procedures, and other FPP procedures.

b. Findings

No findings of significance were identified.

.02 Passive Fire Protection – Fire Barriers and Fire Area/Zone/Room Penetration Seals

a. Inspection Scope

The team reviewed the selected FZs to evaluate the adequacy of the fire resistance of interior structural components, fire barrier enclosure walls, ceilings, floors fire barrier mechanical and electrical penetration seals, fire doors, and fire dampers in accordance with the requirements of 10 CFR 50 Appendix R, Section III.G, and Appendix A of BTP APCSB 9.5-1. The review was performed to ensure that at least one train of SSD equipment was free of fire damage. This was accomplished by observing the material condition and configuration of the installed fire barrier features, as well as reviewing construction detail drawings, engineering evaluations and fire endurance tests for the installed fire barrier features. The team evaluated whether the as-built configurations met design requirements, license commitments, standard industry practices, and were either properly evaluated or qualified by appropriate fire endurance tests. In addition, the team reviewed a summary of surveillance and maintenance procedures for the selected passive fire barrier features to verify these were properly inspected, maintained, and met the licensing and design bases as described in licensee submittals, NRC SERs, and the UFSAR. The passive fire protection features included in the review are listed in the Attachment.

b. Findings

No findings of significance were identified.

.03 Active Fire Protection

a. Inspection Scope

The team reviewed flow diagrams, design basis specifications, system operating instructions, hydraulic calculations, and engineering evaluations/vulnerability studies associated with the electric motor-driven high pressure service water (HPSW) fire service pumps and fire protection water supply piping system. Using fire brigade response and HPSW valve alignment procedures as well as engineering drawings, the team examined selected portions of the HPSW fire protection water supply piping to evaluate material condition, consistency of as-built configurations with engineering drawings, and to verify correct system valve lineups. The team evaluated the capability of the HPSW pumps to fulfill their fire protection function to provide adequate flow and pressure to hose stations and manual and automatic suppression systems while maintaining equipment cooling required by the dual functionality of the system. The team assessed procedural steps for operators to manually open a discharge flow path sufficient to provide minimum HPSW pump flow protection, place a HPSW pump in run to increase system pressure and align HPSW system water flow to supply the suppression systems. The team also assessed the operability of an elevated water storage tank associated with the system. In addition, the team reviewed completed periodic surveillance and operability flow test data for the HPSW pumps and fire mains to assess whether the test program was sufficient to validate proper operation of the fire protection water supply system in accordance with those design requirements and acceptance criteria specified in Selected Licensee Commitment 16.9.1, “Fire Suppression Water Supply Systems.”

For the selected FZs, the team reviewed the adequacy of the design, installation, and operation of the automatic detection and alarm system to actuate in the early stage of a fire. This included walk downs of the systems and examination of the types of installed detectors, as shown per location drawings, to assess whether the areas were protected by fire detectors in accordance with the design requirements of Appendix A of BTP APCSB 9.5-1 and the NFPA code of record. The team also reviewed the licensee’s fire protection program submittals and associated NRC SERs for the selected FZs to ensure that the fire detection systems were installed in accordance with the design and licensing bases of the plant. Additionally, the team reviewed completed fire detection surveillance procedures to verify that the detectors were properly inspected, maintained, and met the licensing and design bases, and to ensure that the detection systems would function as required.

The team reviewed the adequacy of the design and installation of the fixed manually-activated dry closed-head sprinkler suppression system for the Unit 3 equipment room (FZ 89). The team reviewed the design and installation specifications, installation drawings, hydraulic calculations, surveillance procedures and NFPA 13, “Standard for the Installation of Sprinkler Systems” (1978 Edition), to ensure the fire suppression system met the design and licensing basis, and that the system could perform its intended function in the event of a fire within the room enclosure.

The team reviewed the manual standpipe and fire hose system to verify adequate design and installation in the selected FZs. During plant tours, team members observed interior fire hose nozzle types, fire brigade nozzles, and the placement of the fire hose stations to verify they were not blocked and were consistent with the fire fighting plans

and FPP documents. The team also examined design calculations, installation specifications, installation drawings, hydraulic calculations, surveillance procedures, fire hose nozzle tests, engineering evaluations, and NFPA 14, " Standard for the Installation of Standpipe and Hose Systems-1978 Edition," to verify that sufficient pressure and flow volume was available to produce electrically safe and effective fire hose operation within the nozzle manufacturer's specified flow range. Additionally, the team checked a sample of fire hose lengths to confirm they could reach potential fire affected equipment and components within the selected fire areas/zones in support of manual fire brigade fire fighting efforts.

The team reviewed operator and fire brigade staffing, selected fire brigade standard operating guides, continuing qualification course training materials, and fire drill program procedures to verify appropriate training was being conducted for the station firefighting personnel. Additionally, the team reviewed post-drill records of fire drills performed in the previous two-year period to evaluate the effectiveness of fire brigade response to simulated fire emergencies and to ensure that drills were being conducted in risk significant areas. The team inspected the fire emergency equipment storage locker locations and dress-out areas containing fire brigade protective ensembles, self-contained breathing apparatuses, smoke control equipment, and other fire brigade equipment to determine operational readiness for fire fighting. This review also included examination of whether electrical fire brigade equipment utilized in support of fire brigade operations, such as smoke ejectors and self-contained breathing apparatus' breathing air bottle refill equipment would not be adversely affected by a fire. The team reviewed the fire plan strategies for the selected FZs and fire response procedures to determine if appropriate 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 FZs to compare the associated fire plan drawings with as-built plant conditions and fire response procedures. This was done to verify that fire fighting plans and drawings were consistent with the fire protection features and potential fire conditions described in OSS-0254.00-00-4008, "Design Basis Specification for Fire Protection." The team evaluated whether the fire response procedures and fire plans for the selected FZs could be implemented as intended. In addition, the team assessed the adequacy of the off-site fire fighting assistance including entry into the plant area, communications, dosimetry and fire equipment usage. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

.04 Protection From Damage From Fire Suppression Activities

a. Inspection Scope

The team performed document reviews of heating, ventilation, and air conditioning system drawings, configuration drawings of electrical raceways and SSD components, and building drain system drawings) and performed in-plant walk downs to verify that redundant trains of systems required for hot shutdown were not subject to damage from fire suppression activities or from the rupture, or inadvertent operation of, fire suppression systems. In this effort, the team observed material condition of concrete floors, floor drain systems, and the physical configuration of equipment and components

in the selected FZs. The team considered the effects of water, drainage, heat, hot gasses, and smoke that could potentially damage all redundant trains or inhibit access to alternate shutdown equipment or performance of alternate safe shutdown operator actions. In addition, the team performed an independent technical review of the licensee's plant change documentation completed to support a modification (ONOE-16236), implemented in 2001, to replace the open head sprinklers in the Unit 3 Equipment Room, and Unit 3 Cable Room/Cable Shaft with closed head sprinklers to minimize damage to other equipment in the areas and to mitigate auxiliary building flooding concerns. The team assessed whether the modification was performed consistent with plant design control procedures and the FPP. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

.05 Post-Fire Safe Shutdown From Outside the Main Control Room (Alternate Shutdown)

a. Inspection Scope

Methodology

The team reviewed the licensee's ability to implement an alternative shutdown strategy based upon the FZs chosen. For each of the chosen FZs the licensee would utilize the standby shutdown facility (SSF) for post-fire SSD to mitigate the effects of a fire in the area as described in OSS-0072.00-00-0006, Rev. 2, "Specification for the Maintenance of the 10 CFR 50 Appendix R Program." The team reviewed the licensee's FPP described in UFSAR Section 9.5.1, the safe shutdown analysis (SSA), abnormal procedures, emergency operating procedures, piping and instrumentation drawings, electrical drawings, and other supporting documents for postulated fires in the selected FZs. 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 main control room (MCR) could be implemented, and that transfer of control from the MCR to the standby SSF 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, decay 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 of licensed and non-licensed operators to verify that the training reinforced the shutdown methodology in the SSA, abnormal procedures, and emergency operating procedures for the selected FZs. The team also conducted interviews, reviewed shift turnover logs and shift manning to verify that personnel required for SSD using alternative shutdown systems and procedures were available onsite, exclusive of those assigned as fire brigade members.

The team performed tabletop reviews of post-fire SSD procedures and also performed a walk through of procedure steps to ensure the implementation and human factors adequacy of the procedures. The team assessed the timeliness of the operator response to initial plant conditions, response to suspected fire conditions, and subsequent operator actions, including but not limited to manning of the SSF. The team 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 cable routing data for a sample of SSD components and evaluated if the components would be impacted by a fire in any of the selected FZs and rendered inoperable as a result of fire damage. Specifically, the team reviewed the cable data to determine if the power and/or control circuits for the SSD components could be potentially damaged by a fire in any of the three FZs selected. For those specific SSD components that had associated cables routed through the selected FZs, the inspectors reviewed the electrical schematics and connection wiring diagrams to determine if those components and associated circuits were designed to be electrically isolated from fire damage such that they could be restored once the controls were transferred from the main control room to the SSF. The team also reviewed cable routing data for a sample of process monitoring instrument channels with indicators located in the SSF to verify that they would be unaffected by a fire in the selected FZs. The components and documents reviewed are listed in the Attachment.

The team reviewed the licensee's testing of isolation/transfer circuits credited for ensuring a fire in a chosen area would not impact controls and interrupt operator actions outlined in existing procedures at the SSF. The team reviewed the scope of the periodic test program for the alternative shutdown transfer capability to ensure the tests were adequate to verify the functionality of the alternative shutdown capability. The team reviewed a problem investigation process (PIP) report entered into the licensee's corrective action program (CAP) that indicated that pressurizer heater Bank "C" controls were not included in the periodic test program upon completion of the modification that added the controls to the SSF. The team discussed this matter with the licensee and confirmed that the controls have been functionally tested.

b. Findings

No findings of significance were identified.

.06 Circuit Analyses

a. Inspection Scope

This segment is not required 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 FZs. The routing information was based upon a list of SSD components submitted by the inspectors to the licensee.

b. Findings

No findings of significance were identified.

.07 Communications for Performance of Fire Fighting Capability and Safe Shutdown

a. Inspection Scope

The team reviewed the plant communications systems that would be relied upon to support fire event notification, fire brigade fire fighting, and plant post-fire SSD. Specifically, the team reviewed the cable routing for components associated with the fire brigade radio repeater system to verify that the two-way radio system would be available to support fire fighting and plant operations during a postulated fire in the selected FZs. In addition, the team reviewed the test program for the 10 CFR 50 Appendix R credited radio to verify that it was being conducted in accordance with plant procedures. The team reviewed the radio battery usage ratings for the portable fire brigade radios stored and maintained on charging stations. The team reviewed selected fire brigade drill 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. The team also reviewed the licensee's corrective actions for previously identified performance deficiencies identified with the radio repeater systems that had been documented in the corrective action program.

b. Findings

No findings of significance were identified.

.08 Emergency Lighting

a. Inspection Scope

The team reviewed the emergency lighting system to verify that it was in accordance with 10 CFR 50, Appendix R, Section III.J, "Emergency Lighting" and NRC-approved exemptions. The team reviewed plant lighting drawings and conducted plant walk downs to determine the adequacy of the emergency lighting units used to support plant personnel during post-fire SSD for the selected FZs. The team conducted plant walk downs and observed the placement and coverage area of fixed 8-hour battery

pack emergency lights 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 the surveillance test records for the past year of monthly functional test as well as the past two years of annual capacity test to confirm that the batteries had the capacity to supply 8-hours of lighting. The team reviewed the PIP reports that had been initiated for the identified test failures to verify that the deficiencies were properly evaluated in accordance with the licensee's CAP.

The team walked down selected plant areas to observe if 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 Part 1910, "Occupational Safety and Health Standards." This effort included an examination of whether backup emergency lighting was provided for the primary and secondary fire emergency equipment storage locker locations and dress-out areas to support fire brigade operations in the event power should fail during a fire emergency.

b. Findings

No findings of significance were identified.

.09 Cold Shutdown Repairs

a. Inspection Scope

The team reviewed fire damage control procedures:

- IP/0/A/0050/002, Rev. 025, "Site Damage Control Procedure,"
- RP/0/B/1000/022, Rev. 009, "Procedure For Major Site Damage Assessment and Repair,"
- MP/0/A/3009/012, Rev. 017, "Emergency Plan for Replacement of HPI, LPI, and LPSW Motors Following a Fire in Turbine Building or Auxiliary Building," and
- OP/0/A/1102/024, Rev. 031, "Plant Assessment and Alignment Following Major Site Damage."

The above procedures were reviewed to determine the scope of planned cold shutdown repairs as well as the types and quantities of equipment and numbers of personnel that would be required to make those repairs. The team also assessed the feasibility of the planned repair activities.

The team toured the warehouses as well as other designated storage areas to confirm that the licensee has specifically designated damage recovery materials onsite consistent with the fire damage control procedures. The inspectors performed a field walkthrough of the fire damage procedures for pulling replacement cables to repair a Unit 3 high pressure injection pump as a representative example to assess whether the cable pull routes prescribed were feasible. The inspectors examined the cable reels as well as the cable termination kits and crimping tools that would be used to lug and terminate the cables at both the motor and the switchgear ends. The inspectors discussed personnel staffing with the licensee to verify that adequate personnel were available to support repair activities.

The team also reviewed maintenance records on damage repair equipment (i.e., motors, breakers, and switchgear) to verify that the equipment was being kept in good material condition.

b. Findings

No findings of significance were identified.

.10 Compensatory Measures

a. Inspection Scope

The team reviewed the administrative controls for out-of-service, degraded and inoperable fire protection features. The team reviewed a sample of active items listed in Fire Protection Program Health Report (2008Q1) and compared them with the FZ selected for inspection. The compensatory measures that had been established in these areas were compared to those specified in the applicable fire protection Selected Licensee Commitments to verify that the risk associated with removing fire protection from service was properly assessed and adequate compensatory measures were implemented in accordance with the approved FPP. Additionally, the team reviewed the adequacy of the licensee's short term compensatory measures to compensate for a degraded function or feature until appropriate corrective actions were taken. This was done to verify that fire short term compensatory measures were in accordance with the requirements described in FPP administrative procedures Nuclear Station Directive (NSD) 316," Fire Protection Impairment and Surveillance", and, Station Directive (SD) 3.2.14, "Fire Protection Program Compensatory Measure Process".

b. Findings

No findings of significance were identified.

4 OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems

a. Inspection Scope

PIP reports involving such issues as two-way radios, emergency lights, SSF transfer testing, as well as issues being handled by the NFPA 805 transition process were reviewed to assess the effectiveness of the Oconee Nuclear Plant FPP in problem identification and resolution.

The team also reviewed CAP documents, including completed corrective actions documented in selected PIPs and operating experience program documents, to ascertain whether industry-identified fire protection problems actually or potentially affecting Oconee were appropriately entered into, and resolved by, the corrective action program process. Items included in the operating experience program effectiveness review were NRC Information Notices, industry or vendor-generated reports of defects and noncompliances under 10 CFR Part 21, and vendor information letters. The team evaluated the effectiveness of the corrective actions for the identified issues. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

On August 14, 2008, the lead inspector presented the inspection results to Mr. R. M. Glover and other members of your staff. Proprietary information is not included in this report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

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S. Boggs, Plant Fire Chief
C. Curry, Mechanical/Civil Engineering Manager
G. Davenport, Compliance Manager
C. Eflin, Operations
R. Fruedenberger, Safety Assurance Manager
M. Glover, Station Manager
K. Grayson, Standby Shutdown Facility Engineer
S. Jarrett, Safe Shutdown Engineer
H. Lefkowitz, Plant Fire Protection Engineer
J. Oldham, Corporate Fire Protection
L. Sheehan, Engineer (Radio Repeater)
J. Smith, Regulatory Compliance
B. Weaver, Probabilistic Risk Analysis

NRC

G. Hutto, Senior Resident Inspector
R. Nease, Chief Engineering Branch 2, Region II
E. Riggs, Resident Inspector

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened/Closed
None

Discussed
None

Section 1R05.02.a: List of Fire Barrier Features Inspected In Relation to Safe Shutdown Separation Requirements

Interior Structural Components	Description
Suspended Ceiling Tiles	Fire Zone 112
Lighting Grids	Fire Zone 112

Floors/Walls/Ceilings	Description
Concrete Block Wall	Fire Zone 101 to West Stairwell (Room 450)
Concrete Block Wall	Fire Zone 112 to Stairwell Corridor (Room 552B)

Fire Dampers	Description
3-K-S-3	Fire Zone 89 to Duct Shaft
3-M-S-5	Fire Zone 101 to Duct Shaft
3-C-S-3	Fire Zone 112 (Kitchen) to Duct Shaft

Fire Doors	Description
354	Fire Zone 89 to Zone 61 Corridor (Room 356)
354A	Fire Zone 89 to Turbine Building
552A	Fire Zone 112 to Stairwell Corridor (Room 552B)
552B	Fire Zone 112 to Stairwell Corridor (Room 552B)

Fire Barrier Penetration Seals	Description
3-K-E-4	Fire Zone 89 to Turbine Building
3-K-E-5	Fire Zone 89 to Turbine Building
3-K-E-6	Fire Zone 89 to Turbine Building
3-M-F-44	Fire Zone 101 to Fire Zone 89
3-C-W-5	Fire Zone 112 to Stairwell Corridor (Room 552B)

Section 1R05.05.a: List of SSD Components Examined for Cable Routing

Valves

3HP VA0003, Letdown Cooler “A” Outlet
3HP VA0004, Letdown Cooler “B” Outlet
3HP VA0020, RCP Seal Return

Instruments

3RC PT0225, RCS Loop A Pressure
3RC PT0226, RCS Loop B Pressure
3RC RD-85A, -84A, -8A, -7B, -6A, -5B, RC System Temperature
3RC LT0072, Pressurizer Water Level
3FDWLT0066, Steam Generator Level
3FDWLT0067, Steam Generator Level
3CCWFT0225, Unit 3 Auxiliary Service Water Flow

DOCUMENTS REVIEWED

Drawings

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O-702-B, One Line Diagram 4160 and 600V Essential Load Centers Auxiliary Power Systems SSF, Rev. 19
O-703-L, One Line Diagram 208/120 VAC & 120 VAC Power Panel Boards, Rev. 15
O-842, Auxiliary Building Lighting Plan Elev. 796 ft + 6 inches, Rev. 37
O-842-A, Auxiliary Building Lighting Plan Elev. 796 ft + 6 inches, Rev. 21
O-844, Auxiliary Building Lighting Layout Penetration Room Elev. 838 ft + 0 inches, Rev. 29
O-846-A, Lighting Control Room Elev. 822 ft + 0 inches, Rev. 22
O-846-F, Lighting Cable, Equipment & Control Room Details, Rev. 11
O-846-G, Lighting Control Room Receptacles Elev. 822 ft, Rev. 19
O-847-D, Lighting Auxiliary Building Plans, Rev. 12
O-874-D, Lighting SSF Plans at Elev. 754 ft. to 777 ft, 797 ft, Rev. 19
O-985-B3, Connection Diagram SSF (EOC System) Upperhalf of Console Unit 3, Rev. 10
O-985-B11, Connection Diagram SSF Unit 3 Plug Panel P-03-09, Rev. 3
O-985-B13, Connection Diagram SSF(EOC System) Annunciator and Instrument Power Supply Termination, Rev. 13
O-985-C4, Connection Diagram SSF EOC System Right Front Half SSF IC1, Rev. 21
O-985-C5, Connection Diagram SSF Left Rear Half SSF IC1, Rev. 7
O-985-C8, Connection Diagram SSF EOC System Right Front Half SSF IC2, Rev. 11
O-985-C9, Connection Diagram SSF (EOC) System Left Rear Half SSF IC2, Rev. 17
O-985-C13, Connection Diagram Miscellaneous Equipment Cabinet (MEC) SSF System, Rev. 13
O-985-C14, Connection Diagram MEC SSF (EOC) System, Rev. 18
O-985-C17B, Connection Diagram SSF Nuclear Instrumentation Rack, Rev. 5
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O-985-G2, Outline and Connection Diagram SSF EOC System Misc. Equipment, Rev. 10
O-1024-09, Auxiliary Building, Unit 3, Equipment Room Architectural Plan at 796+6, Rev. 8
O-2157G, Beam Schedule, Unit 3, Auxiliary Building, El. 825+0 and 838+0, Rev. 2
O-2505A, HVAC, Unit 3, Auxiliary Building, Control Room, Rev. 6
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O-2508C, HVAC, Unit 3, Auxiliary Building, Cable Rm., Elev. 809+3, Rev. 3
O-2509A, HVAC, Unit 3, Auxiliary Building, Elev. 822+0, Rev. 11
O-2509B, HVAC Sections, Unit 3, Auxiliary Building, Elev. 822+0, Rev. 11
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O-2711-E, Connection Diagram Unit Control Board No. 3UB1 Inside Rear View, Rev. 35
O-2711-D, Connection Diagram Unit Control Board No. 3UB1 Inside Rear View, Rev. 53
O-2714-F, Connection Diagram Vertical Board No. 3VB1 Inside Rear View, Rev. 22
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O-2752-A-70, Interconnection Diagram 600 V SSF Motor Control Center (MCC) 3XSF Units F01A thru F04C, Rev. 11
O-2752-A-71, Interconnection Diagram 600 V SSF MCC 3XSF Units F05D thru F06D, Rev. 4
O-2752-A-72, Interconnection Diagram 208 V SSF MCC 3XSF Units F01A thru F02D, Rev. 3
O-2756-I, Fire Detection System Detector Tabulation, Rev. 10
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O-2757-A, Connection Diagram Odd Channels Engineered Safeguards Terminal Cabinet No. 3ESTC1, Rev. 31
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O-2767-A62, Connection Diagram Reactor Building Penetration Type M Penetration No. WA11, Rev. 4
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OEE-355-23, Elementary Diagram Inadequate Core Cooling System RCS Wide Range Hot Leg Temperature Output Current Loops, Rev. 1
OEE-360-37, Elementary Diagram Vent Stack Flow, Rev. 3
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PT/0/B/2000/002, Periodic Test of Emergency Response Communications Equipment, Rev. 36
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OSC-3771, 10 CFR 50 Appendix R Intake Structure Emergency Lighting, Rev. 0

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NUREG-1552, Supplement 1, Fire Barrier Penetration Seals in Nuclear Power Plants, dated January 1999
NFPA 805, Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants, 2001 Edition
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Data Sheet for Honeywell Low Profile Ionization Smoke Detector, Model TC807B, 74-1941-3, Dated March 2003
Data Sheet Nozzle Flow for Elkhart Brass Company, Chief 4000-23 Fire Hose Nozzle, dated July 2008
Data Sheet Nozzle Flow for Brooks Equipment Company, BECO E15NST Polycarbonate Fire Hose Nozzle, dated July 2008
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Letter dated December 27, 1984, from NRC to DPC Transmitting Exemption to Certain Requirements of Appendix R to 10 CFR Part 50
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Design Basis Documents

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OSS-0169.00-00-0001, Design Basis Specification for Auxiliary Building Acoustical Ceiling, Dated 1/9/1978
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Other Documents

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ONS Generic Plant Access Training for Fire Protection, Version 7.00

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Fire Zone Base Loss Report, Fire Zone: 89
NLO-042, Job Performance Measure, Rev. 13
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OP-OC-PSF-091, SSF Operation Following a Loss of Power and All Feedwater, Rev. 01
OP-OC-EAP-SEP, Emergency Plan, Rev. 18
OP-OC-SAE-R201, Exercise Guide, Rev. 00C
TQ-OO2444101, Following Fire, Flood or Sabotage, Place and Maintain Units in Hot Shutdown From SSF by Procedure, Rev. 04
Combustible/Chemical Inventory Database Report for Oconee Auxiliary Building, Dated 7/22/2008

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

O-08-04388, Combustibles stored in stair tower and blocked fire hose station
O-08-04425, Electrical Cable Crimping procedure does not depict tool for Appendix R connector
O-08-04495, Difficulty in locating Appendix R equipment for cold shutdown repairs
O-08-04496, Calibration stickers missing from spare ADV pressure gauges
O-08-04498, No established policy on periodic replacement of portable radio batteries
O-08-04665, Wrong HPSW valve in Fire Brigade response procedure
O-08-04820, NRC question on effectiveness of plant radios without repeaters
O-08-05000, Fire Brigade SOG #9 needs revising
O-08-05004, Conditions of degraded CCW input needs to be evaluated on impact of HPSW
O-08-05012, Informal evaluation of fire doors needs to be more formally documented

PIP Reports Reviewed During This Inspection

O-99-0273, Ability of Control Room to Communicate with NLOs via Radio for All Events is Questionable
O-05-03962, Evaluate Consequences of Spurious Closure of HPSW Motor Operated Valves Due to Fire Induced Electric Failures to Support NFPA-805 Transition
O-05-03987, Operations Procedure May Need Enhancement to Address Inability to Perform Steps as Written Following Control Room Evacuation
O-05-04029, Fire Hose Station Configuration Control of Nozzles
O-05-04125, Perform a Fire Vulnerability Analysis to Support NFPA-805 Transition on HPSW Pumps
O-07-00467, IN2007-19, Fire Protection Equipment Recalls and Counterfeit Notices
O-07-0658, IN2007-26, Combustibility of Epoxy Floor Coatings at Commercial Nuclear Power Plants
O-07-02719, IN2007-17, Fires at Nuclear Power Plants Involving Inadequate Fire Protection Administrative and Design Controls
O-08-00343, IN2008-04, Counterfeit Parts Supplied to Nuclear Power Plants

O-08-00108, Self Contained Battery Emergency Lights NCL-67 and NCL-80 Failed to Meet Performance Criteria of Procedure IP/0/B/3000/20
O-08-01391, Self Contained Battery Emergency Light NCL-61 Failed to Meet Performance Criteria of Procedure IP/0/B/3000/20
O-08-01854, Self Contained Battery Emergency Light NCL-19 Failed to Meet Performance Criteria of Procedure IP/0/B/3000/20
O-08-01860, Self Contained Battery Emergency Lights R1, 12, V1 and NCL-64 Failed to Meet Performance Criteria of Procedure IP/0/B/3000/20
O-08-02640, Self Contained Battery Emergency Lights P1 and NCL-89 Failed to Meet Performance Criteria of Procedure IP/0/B/3000/20
O-08-03887, Self Contained Battery Emergency Lights 03, 15, NCL-20, NCL-50, NCL-52, and NCL-63 Failed to Meet Performance Criteria of Procedure IP/0/B/3000/20

LIST OF ACRONYMS

ADAMS	-	Agency Wide Documents Access and Management System
APCSB	-	Auxiliary and Power Conversion Systems Branch
ASW	-	Auxiliary Service Water
BTP	-	Branch Technical Position
CAP	-	Corrective Action Program
CFR	-	Code of Federal Regulations
DEC	-	Duke Energy Corporation
DPC	-	Duke Power Company
FPP	-	Fire Protection Program
ft	-	foot
FZ	-	Fire Zone
HPI	-	High Pressure Injection
HPSW	-	High Pressure Service Water
ICS	-	Integrated Control System
IP	-	Inspection Procedure
IR	-	Inspection Report
LER	-	Licensee Event Report
MC	-	Manual Chapter
MCC	-	Motor Control Center
MCR	-	Main Control Room
MEC	-	Miscellaneous Equipment Cabinet
NFPA	-	National Fire Protection Association
NRC	-	Nuclear Regulatory Commission
NSD	-	Nuclear Site Directive
ONS	-	Oconee Nuclear Station
PARS	-	Publicly Available Records
PIP	-	Problem Investigation Process Report
PRA	-	Probabilistic Risk Assessment
RCS	-	Reactor Coolant System
Rev.	-	Revision
RG	-	Regulatory Guide
RI	-	Reactor Inspector
SD	-	Station Directive
SDP	-	Significance Determination Process
SER	-	Safety Evaluation Report
SRI	-	Senior Reactor Inspector
SSA	-	Safe Shutdown Analysis
SSD	-	Safe Shutdown
SSF	-	Standby Shutdown Facility
UFSAR	-	Updated Final Safety Analysis Report