



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

October 29, 2009

Mr. David A. Baxter
Site Vice President
Duke Energy Carolinas, LLC
Oconee Nuclear Station
7800 Rochester Highway
Seneca, SC 29672

SUBJECT: OCONEE NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT
05000269/2009004, 05000270/2009004, 05000287/2009004 AND
EMERGENCY PREPAREDNESS INSPECTION REPORT 05000269/2009501,
05000270/2009501, 05000287/2009501

Dear Mr. Baxter:

On September 30, 2009, 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 October 8, 2009, with you 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.

The report documents one NRC-identified finding and one self-revealing finding of very low safety significance (Green). One finding was determined to be a violation of NRC requirements. Additionally, one licensee-identified violation, which was determined to be of very low safety significance, is listed in this report. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these violations as non-cited violations (NCVs), consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest any NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the United States Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, D.C. 20555-0001, with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at Oconee. In addition, if you disagree with the characterization of any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region II, and the NRC Resident Inspector at Oconee. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

DEC

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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/

Jonathan H. Bartley, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Docket Nos.: 50-269, 50-270, 50-287, 72-04
License Nos.: DPR-38, DPR-47, DPR-55

Enclosure: NRC Integrated Inspection Report 05000269/2009004, 05000270/2009004, 05000287/2009004 and Emergency Preparedness Inspection Report 05000269/2009501, 05000270/2009501, 05000287/2009501 w/Attachment: Supplemental Information

cc w/encl: (See page 3)

DEC

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Letter to David A. Baxter from Jonathan H. Bartley dated October 29, 2009

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: 50-269, 50-270, 50-287, 72-04

License Nos: DPR-38, DPR-47, DPR-55

Report Nos: 05000269/2009004, 05000270/2009004, 05000287/2009004
05000269/2009501, 05000270/2009501, 05000287/2009501

Licensee: Duke Energy Carolinas, LLC

Facility: Oconee Nuclear Station, Units 1, 2 and 3

Location: Seneca, SC 29672

Dates: July 1, 2009, through September 30, 2009

Inspectors: A. Sabisch, Senior Resident Inspector
E. Riggs, Acting Senior Resident Inspector
G. Ottenberg, Resident Inspector
K. Ellis, Resident Inspector
L. Miller, Senior Emergency Preparedness Inspector
(Sections 1EP2 through 1EP5)

Approved by: Jonathan H. Bartley, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000269/2009-004, 05000270/2009-004, 05000287/2009-004, 05000269/2009-501, 05000270/2009-501, and 05000287/2009-501; 07/01/2009 - 09/30/2009; Oconee Nuclear Station, Units 1, 2, and 3; Maintenance Risk Assessment and Emergent Work Evaluations, Event Follow-up.

The report covered a three-month period of inspection by the resident inspectors and an emergency preparedness inspector. Two Green findings were identified of which one was a non-cited violation (NCV). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Cross-cutting aspects are determined using IMC 0305, "Operating Reactor Assessment Program." Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process."

Cornerstone: Initiating Events

- Green: A self-revealing finding was identified when Unit 3 experienced a reactor trip from 42 percent power as a result of a main generator lockout. The generator lockout was caused by an incorrect tap setting on a phase differential relay (HU-4).

The failure to develop a technical procedure as required by Nuclear System Directive (NSD)-703 was determined to be a performance deficiency. The performance deficiency was more than minor because it was associated with the external factors attribute of the Initiating Events cornerstone and it affected the cornerstone objective in that the lack of a technical procedure adversely impacted the ability to correctly perform the calibration of the relay which caused a main generator lockout and reactor trip. This finding was assessed using IMC 0609, Attachment 4, and determined to be of very low safety significance (Green) because the function of any mitigation equipment was not affected. The cause of this finding was directly related to the cross-cutting aspect of human error prevention techniques in the "Work Practices" component of the Human Performance cross-cutting area [H.4(a)]. (4OA3.4)

Cornerstone: Mitigating Systems

- Green: An NRC-identified non-cited violation of 10 CFR 50.65(a)(4) was identified for the licensee's failure to provide adequate guidance to perform an appropriate risk assessment associated with the repair of a through-wall leak on the Unit 2 Standby Shutdown Facility (SSF) auxiliary service water (ASW) pump discharge line which rendered the Unit 2 SSF ASW system unavailable. The licensee initiated Problem Investigative Process reports (PIPs) O-09-6393 and O-09-6003 to evaluate this issue.

The inspectors determined the licensee's failure to provide adequate guidance to subsequently perform an appropriate risk assessment was a performance deficiency. The failure to provide guidance to adequately assess and manage risk was determined to be

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greater than minor because, if left uncorrected, it had the potential to lead to a more significant safety concern in that risk management actions to protect risk-significant equipment would not have been timely implemented. The inspectors assessed the finding using IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," and determined that the finding was of very low safety significance (Green) based on the calculated incremental core damage probability being less than 1×10^{-6} and the additional risk management actions that were implemented. This finding also involved the cross-cutting aspect of failing to appropriately plan work activities by not fully incorporating risk insights as described under the Work Control component of the Human Performance cross-cutting area [H.3(a)]. (1R13)

A violation of very low safety significance (Green), which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation is listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at approximately 100 percent rated thermal power (RTP). The unit was taken offline and placed in Mode 3 on September 1 to repair a feedwater control valve. The unit was returned to 100 percent RTP on September 7 and remained there for the remainder of the inspection period.

Unit 2 began the inspection period at approximately 100 percent RTP and remained there for the entire inspection period.

Unit 3 began the inspection period at approximately 100 percent RTP and remained there for the entire inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

a. Inspection Scope

Summer Readiness of Offsite and Alternate AC Power Systems: The inspectors reviewed the licensee's procedures and measures designed to monitor and maintain availability and reliability of both the offsite Alternating Current (AC) power system (grid) and the onsite alternate AC power systems prior to the onset of summer weather conditions. This included the review of the licensee's Station, Nuclear Division, and Power Delivery group procedures defining the coordination of activities that could impact the on-site and offsite AC power systems and the communication protocols established between the Power Delivery group and Oconee to verify that the appropriate information was exchanged when issues arise that could impact the AC power systems. The inspectors also discussed the implementation of the procedural guidance with personnel from operations, engineering and work control. Documents reviewed are listed in the Attachment.

Readiness for Seasonal Extreme Weather Conditions: The inspectors observed the condition and readiness of the room cooling equipment for the Units 1, 2, and 3 Low Pressure Injection (LPI) and High Pressure Injection (HPI) pump rooms to ensure that the ability to maintain ambient temperatures in these rooms consistent with post accident design basis assumptions is preserved during hot weather conditions. The inspectors walked down the portions of the Low Pressure Service Water (LPSW) system to verify appropriate flows and temperatures were being maintained. The inspectors also observed the material condition of the LPSW piping, coolers and air handling equipment in the LPI pump rooms to ensure that the licensee was maintaining this equipment at the appropriate level. The inspectors took temperature measurements in the rooms during hot weather conditions to verify that the appropriate ambient conditions were being maintained. Documents reviewed are listed in the Attachment.

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The inspectors also reviewed the licensee's commitments to address tornado missile protection as part of the licensee's tornado licensing reconstitution project. The inspectors reviewed the licensee's preparations for tornados, including the inventory and minimization of potential tornado generated-missiles. The inspectors verified the assumptions used and conclusions drawn from a new tornado-generated missile Ocone calculation, OSC8859. The calculation is used as an input into other calculations that utilize TORMIS computer code. The inspectors also reviewed the licensee's most recent update of the calculation, which was performed before each refueling outage, and performed a walkdown of the site. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

a. Inspection Scope

Partial Walkdowns: The inspectors performed partial system walkdowns of the four systems listed below to assess the operability of redundant or diverse trains and components when safety-related equipment was inoperable or out-of-service (OOS) and to identify any discrepancies that could impact the function of the system potentially increasing overall risk. The inspectors reviewed applicable operating procedures and walked down system components, selected breakers, valves, and support equipment to determine if they were correctly aligned to support system operation. The inspectors reviewed protected equipment sheets, maintenance plans, and system drawings to determine if the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program. Documents reviewed are listed in the Attachment.

- Units 1, 2, and 3 Control Room Ventilation Systems while the fire detection system was not in conformance with the Ocone Updated Final Safety Analysis Report (UFSAR) description
- 2B reactor building spray (RBS) train while the 2A RBS pump was out of service for planned maintenance
- 1B motor driven emergency feedwater pump (MDEFWP) and Unit 1 turbine driven emergency feedwater pump (TDEFWP) while the 1A MDEFWP pump was OOS for preventive maintenance (PM)
- Protection of risk-significant equipment during the period the SSF ASW piping leak repairs were in-progress

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

Fire Area Tours: The inspectors walked down accessible portions of the four plant areas listed below to assess the licensee's control of transient combustible material and ignition sources, fire detection and suppression capabilities, fire barriers, and any related compensatory measures. The inspectors observed the fire protection suppression and detection equipment to determine if any conditions or deficiencies existed which could impair the operability of that equipment. The inspectors selected the areas based on a review of the licensee's safe shutdown analysis probabilistic risk assessment and sensitivity studies for fire-related core damage accident sequences. Documents reviewed are listed in the Attachment.

- Independent Spent Fuel Storage Installation (ISFSI) Facility - Building 8027
- Turbine Building (TB) Basement
- TB Ground Floor, including Unit 1, 2 and 3 Equipment Rooms
- TB Operating Floor

Drill Observation: The inspectors observed a graded fire drill conducted on September 11 associated with Unit 1 cable room inside the radiologically controlled area. The inspectors assessed the fire brigade's use of protective gear and fire fighting equipment; determined that the fire fighting pre-plan procedure and appropriate fire fighting techniques were used; that the directions of the fire brigade leader were thorough, clear and effective; and that control room personnel responded appropriately to the simulated fire event. The inspectors also attended the subsequent drill critique to assess if it was appropriately critical, included discussions of drill observations and identified any areas requiring corrective actions. In addition to the fire drill, the inspectors evaluated the self-contained breathing apparatus (SCBA) program by reviewing training records and associated course content summaries for initial and refresher training, the SCBA maintenance program and procedures, and verified that SCBAs were available and properly stored as part of the annual fire drill inspection requirements. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

a. Inspection Scope

Internal Flooding: The inspectors reviewed selected risk-important passive design features that are intended to protect safety related plant equipment. The inspectors reviewed the following two areas that had the potential for internal flooding. Documents reviewed are listed in the Attachment.

- The inspectors performed walkdowns of the Unit 1 LPI system and RBS pump rooms in order to ensure wall penetrations were appropriately sealed and that floor drains were free of debris. An internal flooding analysis that had been performed for the auxiliary building was reviewed as were applicable procedures regarding the control of passive civil design features. The LPI hatch area was also walked down to ensure that appropriate passive flood barriers were in place.
- Inspectors reviewed the temporary mechanism used to seal the penetrations in the SSF outer below-grade wall made to support the new ASW piping being installed. The Complex Plan pertaining to the boring through the wall and installation of the temporary seals was reviewed along with the design documents of the sealing mechanism itself. Installation of the seals was observed by the inspectors once the SSF wall was breached.

Submerged or Buried Cables: The inspectors inspected the condition of the Unit 2 SSF cable trench when the trench covers were removed. The inspectors verified the trench was absent of standing water and that the cables were intact and in good condition. The inspectors also reviewed the yard trenches health report to ensure the condition of the trench drainage features was being trended. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance

a. Inspection Scope

Annual Review: The inspectors observed the performance test of the Unit 3 'C' Reactor Building Cooling Unit (RBCU). The inspectors verified that appropriate data was being collected and analyzed to determine the heat removal capability of the cooler. The inspectors reviewed the method being used by the licensee to determine operability of the system based on available margin. The inspectors also verified that the frequency of testing was sufficient to detect cooler degradation prior to system operability being affected. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification

a. Inspection Scope

The inspectors observed SAE-R213, Segment 10, to assess the performance of licensed operators during a simulator training session. The scenario included unloading the main turbine during a down power at end of core life, followed by a 1A letdown

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cooler leak. After isolating the 1A letdown cooler, a loss of offsite power was simulated coincident with the failure of both Keowee units. This scenario required the crew to implement AP-25, Standby Shutdown Facility Emergency Operating Procedure. The scenario was terminated when power was restored by manually aligning the feed from CT-5, and emergency feedwater was thereby restored to the steam generators. The inspection focused on high-risk operator actions performed during implementation of the abnormal and emergency operating procedures, and the incorporation of lessons learned from previous plant and industry events. The classification and declaration of the Emergency Plan by the Shift Technical Advisor and Operations Shift Manager was also observed. The post-scenario critique conducted by the training instructor and the crew was observed. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the repair of a through-wall leak on the Unit 2 ASW piping adjacent to the SSF building to assess the licensee's effectiveness in performing routine maintenance activities. This review included an assessment of the licensee's practices pertaining to the identification, scoping, and handling of degraded equipment conditions including common cause failure evaluations. The inspectors performed a detailed review of the problem history and surrounding circumstances, evaluated the extent of condition review, and reviewed the generic implications of the equipment and/or work practice problem. For those structures, systems, and components (SSCs) scoped in the Maintenance Rule, the inspectors verified that reliability and unavailability were properly monitored and that 10 CFR 50.65 (a)(1) and (a)(2) classifications were justified. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors evaluated the following attributes for the six activities listed below: (1) the effectiveness of the risk assessments performed before maintenance activities were conducted; (2) the management of risk; (3) that, upon identification of an unforeseen situation, necessary steps were taken to plan and control the resulting emergent work activities; and (4) that maintenance risk assessments and emergent work problems were adequately identified and resolved. Documents reviewed are listed in the Attachment.

- Complex Activity Plan, Unit 1 Main Control Board Additions (OD100941)
- Critical Activity Plan, RBS System Restoration Fill and Vent Testing
- Excavation of the High Pressure Service Water system piping to connect new fire main and associated hydrants
- Complex Activity Plan, EC 97950 (OD 202152), Unit 2 Borated Water Storage Tank (BWST)/SSF Trench Protection Foundation
- Critical Activity Plan, Remove and Replace 3B LPSW Pump Motor
- Complex Activity Plan, EC101693, Replace 6 inch Class C SSF ASW Carbon Steel Piping and Critical Activity Plan for the tie-in of the new ASW piping to the existing headers

b. Findings

Introduction: An NRC-identified Green NCV of 10 CFR 50.65(a)(4) was identified for the licensee's failure to provide adequate guidance to perform an appropriate risk assessment associated with the repair of a through-wall leak on the Unit 2 SSF ASW pump discharge line which rendered the Unit 2 SSF ASW system unavailable.

Description: On August 18, the licensee identified that the Unit 2 SSF ASW discharge piping developed a through-wall leak. The licensee isolated the discharge piping and declared the system inoperable and unavailable in order to perform repairs to the affected piping. The licensee protected equipment contained in the pre-planned template for the SSF being out-of-service which was intended to ensure that other equipment was not mistakenly manipulated, taken out of service, or otherwise rendered inoperable. However, inspectors observed that PIP O-06-03703 had previously documented that if the Keowee overhead unit and power path was unavailable concurrent with SSF unavailability, the affected unit would be in a Red risk configuration. The Keowee overhead unit and power path was not included in the pre-planned template as protected equipment. The inspectors discussed this observation with the licensee on August 24.

On August 24, the licensee re-performed a risk assessment using the Operational Risk Assessment Monitor (ORAM) risk assessment tool and confirmed that the additional equipment, if made unavailable concurrent with the SSF ASW unavailability, would elevate overall unit risk to a Red condition. After further evaluation and refinement of the ORAM model, it was determined that if the Keowee overhead path was made unavailable at the same time as the SSF ASW, the unit would have been in a higher risk condition although not Red as had been initially determined. Other scenarios including the loss of the Unit 2 MDEFW pumps, elevated water storage tank, EFW cross connect valves, or the atmospheric dump valves in conjunction with the SSF ASW inoperability were not re-evaluated; however, they were subsequently protected based on the ORAM results and confirmation by the Probabilistic Risk Assessment group that they did result in elevated risk.

The risk insights from PIP O-06-03703 were not incorporated into the guidance for performing risk assessments when the SSF was out of service. Consequently, the “what-if” risk assessment was not performed and appropriate risk management actions were not implemented until six days after the Unit 2 SSF ASW was declared inoperable and unavailable.

Analysis: The inspectors determined the licensee’s failure to provide adequate guidance to subsequently perform an appropriate risk assessment was a performance deficiency. The failure to provide guidance to adequately assess and manage risk was determined to be greater than minor because, if left uncorrected, it had the potential to lead to a more significant safety concern in that risk management actions to protect risk-significant equipment would not have been timely implemented. The inspectors assessed the finding using IMC 0609, Appendix K, “Maintenance Risk Assessment and Risk Management Significance Determination Process,” and determined that the finding was of very low safety significance (Green) based on the calculated incremental core damage probability being less than 1×10^{-6} and the additional risk management actions that were implemented. This finding also involved the cross-cutting aspect of failing to appropriately plan work activities by not fully incorporating risk insights as described under the Work Control component of the Human Performance cross-cutting area [H.3(a)].

Enforcement: 10 CFR 50.65(a)(4) requires, in part, that the licensee assess and manage the increase in risk that may result from proposed maintenance activities prior to performing the maintenance activities. Contrary to this, the licensee failed to implement appropriate risk management actions between August 18 and August 24 when the Unit 2 SSF ASW system was rendered unavailable because of inadequate guidance to properly assess the increased risk. Because the finding is of very low safety significance (Green) and has been entered into the licensee’s corrective action program as PIPs O-09-6393 and O-09-6003, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy and is identified as NCV 05000270/2009004-01: Inadequate Assessment and Management of Risk During SSF ASW Inoperability.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following five operability evaluations affecting risk significant systems to assess: (1) the technical adequacy of the evaluations; (2) whether continued system operability was warranted; (3) whether other existing degraded conditions were considered; (4) if compensatory measures were involved, whether the compensatory measures were in place, would work as intended, and were appropriately controlled; and (5) where continued operability was considered unjustified, the impact on TS limiting condition for operations (LCOs).

- PIP O-09-4281, RBCU Test Instrument is Giving Bad Data
- PIP O-09-5808, U-2 SSF ASW Flow Indication Fluctuating Consistently from 60 gpm to 109 gpm

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- PIP O-09-5942, Depth of SSF ASW Piping, as Found, Has Less Soil Coverage Than Specified in the Complex Activity Plan
- PIP O-09-6502, Fire Door Thresholds on Unit 1 and 2 that Separate the East and West Penetration Rooms Were Not Repaired Correctly
- PIP O-09-6619, Ultrasonic Test of 2BS-25 (2B RBS Header Vent) Indicated Gas Voiding in Piping

b. Findings

No findings of significance were identified.

1R18 Plant Modifications

a. Inspection Scope

The inspectors reviewed one permanent plant modification and two temporary plant modifications to verify the adequacy of the modification packages and to evaluate the modifications for adverse affects on system availability, reliability and functional capability. Documents reviewed are listed in the Attachment.

Permanent Plant Modifications

- EC101693, Replacement of 6 inch Class C SSF ASW Piping

Temporary Plant Modifications

- EC101478, Temporary Modification to Restore Failing Pressurizer Temperature Resistance Temperature Detector (1RD43A) Element A
- EC101578, Temporary Cooling for 1B Feedwater Pump Turbine

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed the following five post-maintenance test procedures and/or test activities to assess if: (1) the effect of testing on the plant had been adequately addressed by control room and/or engineering personnel; (2) testing was adequate for the maintenance performed; (3) acceptance criteria were clear and demonstrated operational readiness consistent with design and licensing basis documents; (4) test instrumentation had current calibrations, range, and accuracy consistent with the application; (5) tests were performed as written with applicable prerequisites satisfied; (6) jumpers installed or leads lifted were properly controlled; (7) test equipment was removed following testing; and (8) equipment was returned to the status required to perform its safety function. Documents reviewed are listed in the Attachment.

- PT/1/A/0600/013, 1A MDEFW Pump Test Following Pump Lubrication
- PT/1/A/0152/020, AFIS Circuitry Test Following the Replacement of the Valve Positioner on 1FDW-41
- PT/2/A/0600/013, 2A MDEFW Pump Test Following Pump Lubrication
- PT/3/A/0251/001, 3B LPSW Pump Following Replacement of Pump's Motor
- PT/3/A/0261/010, Essential Siphon Vacuum System Test Following 3A, 3B, and 3C ESV Pump Motor Lubrication PM's

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities

a. Inspection Scope

The inspectors observed portions of the forced outage and subsequent restart of Unit 1 resulting from erratic operation of 1FDW-41, 'B' Main Feedwater Control Valve. Activities observed by the inspectors including the decision-making process, Just-in-Time training provided to the control room operators performing the shutdown, removing the unit from service, portions of the valve actuator repair and post-maintenance testing, and returning the unit to full power. An inspector accompanied licensee personnel on a containment walk down to assess overall material condition of safety-related and risk significant SSCs. Inspectors reviewed the items that had been entered into the licensee's Corrective Action Program (CAP), to establish that the licensee had identified problems related to outage activities at an appropriate threshold and had entered them into the CAP. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors either witnessed and/or reviewed test data for the six surveillance tests listed below to assess if the SSCs met TS, UFSAR, and licensee procedure requirements. In addition, the inspectors determined if the testing effectively demonstrated that the SSCs were ready and capable of performing their intended safety functions. Documents reviewed are listed in the Attachment.

Routine Surveillances

- PT/1/A/0610/001C, EPSL Standby Bus 1 and 2 Voltage Sensing Circuits
- PT/0/A/0600/021, SSF Diesel-Generator Operation
- PT/3/A/0152/013, LPSW System Valve Stoke Test

- MP/0/A/1400/033, Flood Door / SSF Building / Pre Spray / Semi-Annual and 5 Year Preventive Maintenance and Repair

In-Service Tests

- PT/1/A/0203/006A, 1C Low Pressure Injection Pump Test - Recirculation
- PT/1/A/0600/012, Unit 1 TDEFWP Test

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System Testing

a. Inspection Scope

The inspector evaluated the adequacy of licensee's methods for testing the alert and notification system in accordance with NRC Inspection Procedure 71114, Attachment 02, "Alert and Notification System Evaluation." The applicable planning standard 10 CFR 50.47(b)(5) and its related 10 CFR 50, Appendix E, Section IV.D requirements were used as reference criteria. The criteria contained in NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, was also used as a reference. Documents reviewed are listed in the Attachment. This inspection activity satisfied one inspection sample for the alert and notification system on a biennial basis.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization Augmentation

a. Inspection Scope

The inspector reviewed the licensee's Emergency Response Organization (ERO) augmentation staffing requirements and process for notifying the ERO to ensure the readiness of key staff for responding to an event and timely facility activation. The qualification records of key position ERO personnel were reviewed to ensure all ERO qualifications were current. A sample of problems identified from augmentation drills or system tests performed since the last inspection were reviewed to assess the effectiveness of corrective actions.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 03, "Emergency Response Organization Staffing and Augmentation System." The applicable planning standard, 10 CFR 50.47(b)(2) and its related 10 CFR 50, Appendix E requirements were used as reference criteria. Documents reviewed are

listed in the Attachment. This inspection activity satisfied one inspection sample for the ERO staffing and augmentation system on a biennial basis.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope

Since the last NRC inspection of this program area, revisions 08-01, 08-02, and 09-1 of the Oconee Nuclear Station Emergency Plan were implemented based on the licensee's determination, in accordance with 10 CFR 50.54(q), that the changes resulted in no decrease in the effectiveness of the Plan, and that the revised Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR 50. The inspector conducted a sampling review of the Plan changes and implementing procedure changes made between April 1, 2008, and June 30, 2009, to evaluate for potential decreases in effectiveness of the Plan. However, this review was not documented in a Safety Evaluation Report and does not constitute formal NRC approval of the changes.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 04, "Emergency Action Level and Emergency Plan Changes." The applicable planning standard (PS), 10 CFR 50.47(b)(4) and its related 10 CFR 50, Appendix E requirements were used as reference criteria. Documents reviewed are listed in the Attachment. This inspection activity satisfied one inspection sample for the emergency action level and emergency plan changes on an annual basis.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies

a. Inspection Scope

The inspector reviewed the corrective actions identified through the Emergency Preparedness program to determine the significance of the issues and to determine if repeat problems were occurring. The facility's self-assessments and audits were reviewed to assess the licensee's ability to be self-critical, thus avoiding complacency and degradation of their emergency preparedness program. In addition, the inspector reviewed licensee self-assessments and audits to assess the completeness and effectiveness of all emergency preparedness related corrective actions.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 05, "Correction of Emergency Preparedness Weaknesses." The applicable planning standard, 10 CFR 50.47(b)(14) and its related 10 CFR 50, Appendix E requirements were used as reference criteria. Documents reviewed are listed in the

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Attachment. This inspection activity satisfied one inspection sample for the correction of emergency preparedness weaknesses on a biennial basis.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors observed and evaluated a simulator/plant based emergency preparedness drill held on August 25. The drill scenario involved the failure of 1A HPI pump followed by a main steam line break and steam generator tube rupture, which resulted in a Site Area Emergency Declaration. The scenario progressed when transformer CT-1 tripped followed by a trip of SL-1 and SL-2 resulting in a loss of power to the main feeder busses. The scenario further progressed to a General Emergency declaration due to mechanical binding of the turbine driven emergency pump and the SSF diesel shutting down for unknown reasons. The operators were observed to determine if they properly classified the event and made the appropriate notifications for both the alert and site area emergency conditions. Notification sheets were reviewed for accuracy and to verify that protective action recommendations were made in accordance with the licensee's emergency plan procedures. The inspectors observed the post drill critique to assess whether the licensee appropriately captured drill deficiencies and/or weaknesses. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification

a. Inspection Scope

The inspectors sampled licensee data to confirm the accuracy of reported performance indicator (PI) data for the nine indicators during periods listed below. To determine the accuracy of the report PI elements, the reviewed data was assessed against PI definitions and guidance contained in Nuclear Energy Institute 99-02, Regulatory Assessment Indicator Guideline, Rev. 5. Documents reviewed are listed in the Attachment.

Cornerstone: Mitigating Systems

- Mitigating System Performance Index, Residual Heat Removal Systems (3 units)
- Mitigating System Performance Index, Heat Removal Systems (3 units)

For the period October 1, 2008, through June 30, 2009, the inspectors reviewed Operating Logs, Train Unavailability Data, maintenance Records, Maintenance Rule Data, PIPs, Consolidated Derivation Entry Reports, and System Health Reports to verify the accuracy of the PI data reported for each PI.

Cornerstone: Emergency Preparedness

- Emergency Response Organization Drill/Exercise Performance (DEP)
- Emergency Response Organization Readiness (ERO)
- Alert and Notification System Reliability (ANS)

For the period April 1, 2008, through June 30, 2009, the inspector examined data reported to the NRC, procedural guidance for reporting PI information, and records used by the licensee to identify potential PI occurrences. The inspector verified the accuracy of the DEP through review of a sample of drill and event records. The inspector reviewed selected training records to verify the accuracy of the ERO PI for personnel assigned to key positions in the ERO. The inspector verified the accuracy of the PI for ANS reliability through review of a sample of the licensee's records of periodic system tests.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

.1 Daily Screening of Corrective Action Reports

In accordance with IP 71152, Identification and Resolution of Problems, and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed daily screening of items entered into the licensee's corrective action program. This review was accomplished by reviewing copies of PIPs, attending daily screening meetings, and accessing the licensee's computerized database.

.2 Operator Workarounds

a. Inspection Scope

The inspectors reviewed the cumulative effects of deficiencies that constituted operator workarounds to determine whether or not they could: affect the reliability, availability, and potential for misoperation of a mitigating system; affect multiple mitigating systems; or affect the ability of operators to respond in a correct and timely manner to plant transients and accidents. The inspectors also assessed whether operator workarounds were being identified and entered into the licensee's corrective action program at an appropriate threshold. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up

.1 Unit 1 Forced Outage

a. Inspection Scope

On August 31, 2009, a feedwater system perturbation occurred on Unit 1 which resulted in the integrated control system (ICS) going to track and subsequently being taken to hand to maintain stable plant parameters. The 1B main feedwater control valve positioner/actuator was determined to be the cause of the transient resulting in demanded position differing from actual position. Repairs required the unit to be removed from service and Mode 3 was entered on September 1, 2009. Inspectors followed the initial troubleshooting and diagnostic activities and observed the power reduction and removal of the turbine-generator from service. Following repair of the valve's actuator and positioner, stroke testing was performed and the unit returned to service on September 3, 2009, and reached 100 percent power on September 7, 2009. Inspectors observed portions of the power ascension process and reviewed the completed test procedures used to ensure the valve was fully functional. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

- .2 (Closed) Licensee Event Report (LER) 05000269/2008-01, Gas Void Found in High Pressure Injection System Suction Piping. On September 13, 2008, while conducting an ultrasonic test in response to Generic Letter 2008-01, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems, the licensee identified a gas void in one of the two BWST supply lines to the common HPI pump suction header upstream of the 1A HPI pump. The licensee declared the 1A HPI pump and 1A HPI train inoperable and entered TS LCO 3.5.2, Conditions A and C. The gas void was caused by the licensee's failure to adequately incorporate gas voiding operating experience into their processes and procedures. This resulted in failing to identify a section of HPI suction piping that was prone to collecting gas following system refill and testing and to develop an adequate procedure to vent the unit's HPI suction header after restoring the system to its normal lineup following a refueling outage. The enforcement aspects of this issue are discussed in Section 4OA7 of this report. The licensee entered this issue into their CAP as PIP O-08-5600.

.3 (Closed) LER 05000269/2009-01: Several Prior Spent Fuel Pool Configurations Did Not Comply with TS 3.7.13. On June 10, 2009, it was determined that there had been three (3) prior instances where spent fuel assemblies had not been stored in the spent fuel pool (SFP) in compliance with the loading pattern and boundary conditions specified in TS 3.7.13. Following the licensee's identification of the three previously unauthorized storage conditions, the inspectors confirmed that the current loading configurations of the shared Unit 1 / Unit 2 and independent Unit 3 SFPs were in compliance with TS 3.7.13. This failure to comply with TS 3.7.13 constitutes a violation of minor significance that is not subject to enforcement action in accordance with the NRC's Enforcement Policy since the resulting SFP arrangement, from the perspective of criticality, was more conservative than is dictated in TS and the violation could not have led to a more significant safety concern.

.4 (Closed) LER 05000287/2009-02; Unit 3 Trip due to Generator Phase Differential Lockout

a. Inspection Scope

This LER describes the reactor trip that was previously documented in NRC IR 05000287/2009003. The inspectors reviewed this LER and related documents to assess the LER's accuracy, potential violation of NRC requirements, and generic issues. Documents reviewed are listed in the Attachment.

b. Findings

Introduction: A self-revealing Green finding was identified when Unit 3 experienced a reactor trip from 42 percent power as a result of a main generator lockout. The generator lockout was caused by an incorrect tap setting on a phase differential relay (HU-4).

Description: On May 21, during power escalation following a refueling outage, Unit 3 experienced a main generator lockout. The main generator lockout resulted in a reactor trip due to a loss-of-main turbine anticipatory trip signal. There were no significant equipment issues related to the reactor trip and the control room operators responded as expected.

The licensee determined that the tap settings on the X-phase differential relay were incorrectly set causing the relay to actuate. In the course of performing the calibration during the refueling outage, the technician noted that the as-found tap settings did not match the labeling on the relay card; however, it was assumed that the as-left settings from the previous calibration were incorrect. The technician configured the relay using the relay card since a technical procedure did not exist for the task.

The inspectors reviewed NSD-703, Administrative Instructions for Technical Procedures, and determined that a technical procedure was required for this activity because it could result in a plant transient or reactor trip. Further, through a Grid Reliability Study conducted in 2008, the licensee determined that the need for a technical procedure existed. However, the procedure change request (PCR) to develop this procedure

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received a low priority since the relay was non-safety related and the task had been performed for several years without incident. The inspectors determined that had the PCR been discussed during the pre-job briefing, the technician performing the task would have better understood the significance of the relay settings.

Analysis: The failure to develop a technical procedure as required by NSD-703 was determined to be a performance deficiency. The performance deficiency was more than minor because it was associated with the external factors attribute of the Initiating Events cornerstone, and it affected the cornerstone objective in that the lack of a technical procedure adversely impacted the ability to correctly perform the calibration of the relay and was determined to be the direct cause of the main generator lockout and reactor trip. This finding was assessed using IMC 0609, Attachment 4, which determined the finding to be of very low safety significance (Green) because the function of any mitigation equipment was not affected. The cause of this finding was directly related to the "Work Practices" component of the Human Performance cross-cutting area because error prevention techniques such as pre-job briefs were not used adequately and personnel proceeded when faced with unexpected circumstances when realizing that the as-left settings would be different than the as-found settings on the relay [H.4(a)].

Enforcement: Enforcement action does not apply because the finding did not involve a violation of a regulatory requirement and it is identified as FIN 05000287/2009004-02, Unit 3 Trip Due to Generator Phase Differential Lockout.

4OA5 Other Activities

.1 Operation of an Independent Spent Fuel Storage Installation (ISFSI)

a. Inspection Scope

Under the guidance of IP 60855.1, the inspectors observed operations involving spent fuel storage and reviewed the licensee's procedure for storing spent fuel in the ISFSI (MP/0/A/1500/016). The inspectors reviewed Oconee Nuclear Engineering Instruction (ONEI-400) for Dry Shielded Canister (DSC) for ISFSI shipment DSC-107 and discussed spent fuel documentation with the cognizant reactor engineer to verify that the licensee has identified each fuel assembly, recorded the parameters and characteristics of each fuel assembly, and has maintained a record of each fuel assembly as a controlled document. The inspectors verified that the fuel selection was consistent with the ISFSI Certificate of Compliance. The inspectors also observed selected licensee activities related to the transport and storage of DSC-107 to verify that these activities were performed in a safe manner and in compliance with approved procedures. The inspectors performed a walkdown of the ISFSI pad to verify that the ISFSI pad was free of transient combustibles that could impact ISFSI operations, and verified that radiological postings were up to date and that access controls were in place.

The inspectors reviewed selected completed procedures for physical inspection and inventory of the ISFSI (PT/0/A/0750/003, Physical Inventory of Reportable Special Nuclear Material, Enclosure 13.6, Dry Cask Storage Inspections) and completed ONEI-

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400s to verify that records have been established for all spent fuel in storage in the ISFSI, that duplicate records are maintained by the licensee, and that an inventory has been conducted on all spent fuel stored in the ISFSI at least every 12 months.

The inspectors reviewed selected screening evaluations performed pursuant to 10 CFR 72.48 since the last inspection (July 2008). There were no 72.48 evaluations performed during this period, as all document changes screened as not needing a 72.48 evaluation. The inspectors reviewed the following 72.48 screening evaluations:

- MP/0/A/1705/032, Fire Protection Equipment Inspection Procedure, Rev. 30; Incorporation of an ISFSI Fire Extinguisher
- PT/0/A/1500/001, Independent Spent Fuel Storage Installation Horizontal Storage Module Temperature Rise Verification, Rev. 7

b. Findings

No findings of significance were identified.

.2 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours. These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status reviews and inspection activities.

b. Findings

No findings of significance were identified.

.3 (Closed) NRC Temporary Instruction (TI) 2525/175, Emergency Response Organization, Drill/Exercise Performance Indicator, Program Review

The inspector completed Temporary Instruction (TI) 2515/175, Emergency Response Organization, Drill/Exercise Performance Indicator, Program Review. Appropriate documentation of the results was provided to NRC, HQ, as required by the TI.

4OA6 Management Meetings (Including Exit Meeting)

Exit Meeting Summary

The inspectors presented the inspection results to Mr. Dave Baxter, Site Vice President, and other members of licensee management at the conclusion of the inspection period on October 8, 2009. The licensee acknowledged the findings presented. The inspectors

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asked the licensee whether any of the material examined during the inspection should be considered proprietary and no proprietary information was identified.

4OA7 Licensee Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a non-cited violation (NCV).

- Technical Specification 5.4.1 requires that written procedures shall be established, implemented, and maintained as recommended in Regulatory Guide (RG) 1.33, Revision 2, Appendix A, February 1978. Section 3.d of RG 1.33 recommends that procedures be prepared for control of maintenance, repair, replacement, and modification work. Contrary to the above, the licensee failed to develop an adequate procedure to vent, startup, and restore the Unit 1 HPI system following system draining and refilling associated with the 1 EOC-24 refueling outage. On September 13, 2008, a gas void was identified in one of the two BWST supply lines to the common HPI pump suction header. The licensee determined that the use of this inadequate procedure resulted in the accumulation of a gas void in the HPI suction piping, which was of sufficient size to render the 1A HPI pump inoperable, if ingested. The violation was determined to be of very low safety significance (Green), based on a Phase 3 SDP performed by a regional Senior Reactor Analyst. Specifically, using the most current Standardized Plant Analysis Risk model for Oconee with an exposure time of 108 days, the deficiency did not represent a significant contributor to core damage frequency. The licensee entered the finding into their corrective action program as PIP O-08-5600 and reported the issue in LER 05000269/2008001.

ATTACHMENT: SUPPLEMENTAL INFORMATION

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SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

B. Abellana, LPSW Systems Engineer
K. Alter, MCE/BOP Supervisor and Regulatory Compliance Manager
E. Anderson, Superintendent of Operations
S. Batson, Engineering Manager
D. Baxter, Site Vice President
D. Brewer, Safety Assessments Manager
R. Brown, Emergency Preparedness Manager
E. Burchfield, Reactor and Electrical Systems Manager
C. Curry, Mechanical/Civil Engineering Manager
P. Culbertson, Maintenance Manager
P. Downing, SG Manager
R. Fruedenberger, Safety Assurance Manager
P. Gillespie, Station Manager
M. Glover, General Manager of Projects
J. Kammer, Modification Engineering Manager
T. King, Security Manager
B. Meixell, Acting Regulatory Compliance Manager
G. Moss, ISI Task Manager
S. Severance, Regulatory Compliance
J. Smith, Regulatory Compliance

NRC

J. Stang, Project Manager, NRR

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000270/2009004-01	NCV	Inadequate Assessment and Management of Risk During SSF ASW Inoperability (Section 1R13)
05000287/2009004-02	FIN	Unit 3 Trip Due to Generator Phase Differential Lockout (Section 4OA3.4)

Closed

05000269/2008-01	LER	Gas Void Found in High Pressure Injection (HPI) System Suction Piping (Section 4OA3.2)
05000269/2009-01	LER	Several Prior Spent Fuel Pool Configurations Did Not Comply with TS 3.7.13 (Section 4OA3.3)
05000287/2009-02	LER	Unit 3 Trip due to Generator Phase Differential Lockout (Section 4OA3.4)
05000269, 270, 287/2515/175	TI	Emergency Response Organization, Drill/Exercise Performance Indicator, Program Review (Section 4OA5.3)

DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Evaluation of Summer Readiness of Offsite and Alternate AC Power Systems

AP/1,2,3 /A/1700/034, Degraded Grid
AP/1,2,3/A/1700/011, Recovery From Loss of Power
OP/1,2,3/A/1106/040, Generator Voltage Schedule
EP/1,2,3/A/1800/001, Emergency Operating Procedure - Blackout
PT/0/A/0610/026, Electrical System Weekly Surveillance (Common)
PT/1,2/A/2200/001, KHU-1, -2 Weekly Surveillance
PT/1,2/A/2200/002, KHU-1, -2 Bi-Monthly Surveillance
PT/1,2/A/2200/003, KHU-1, -2 Quarterly Surveillance
OP/0/A/2000/041, KHS - Modes of Operation

Hot Weather Preparations

Selected Licensee Commitments (SLC) 16.6.14, Control of HPI and LPI/RBS pump Room Temperatures
OSC-6667, Auxiliary and Turbine Building Loss of Cooling/ Ventilation Analysis
OSS-0254.00-00-1039, Design Basis Specification for Low Pressure Service Water System
Drawing OFD-124B-1.6 and 3.6, Low Pressure Service Water System (Aux. Bldg. Air Handling Units)

Tornado Preparations

PIP O-06-1076, Proposed HELB and Tornado commitments made to the NRC as documented in a January 31, 2006 letter to the Staff
WO 01847224, Unit 0 MCE/Civil to Perform ONS Site Tornado Missile Inventory
WO 01855614, Unit 1 MCE/Civil Tornado Missile Walkdown before outage
WO 01787204, Unit 2 MCE/Civil Tornado Missile Walkdown before outage
WO 01827845, Unit 3 MCE/Civil Tornado Missile Walkdown before outage
OSC-8859, Oconee Tornado Missile Inventory
Duke Energy Carolinas Letter to USNRC dated November 30, 2006, Tornado/HELB Mitigation Strategies and Regulatory Commitments, (ADAMS Accession No. ML070290328)
Duke Energy Carolinas Letter to USNRC dated January 25, 2008, Revision to Tornado/HELB Mitigation Strategies and Regulatory Commitments, (ADAMS Accession No. ML080390239)
Duke Energy Carolinas Letter to USNRC dated November 18, 2008, Revision to Tornado/HELB Mitigation Strategies and Regulatory Commitments, (ADAMS Accession No. ML083330276).

Section 1R04: Equipment Alignment

OSS-0254.00-00-1021, Design Basis Specification for the Control Room Ventilation System, Rev. 24
Complex Activity Plan, OD100941 (EC91830) Unit 1 Main Control Board Additions Pre-Outage Activities 1EOC25
OFD-103A-2.1, Flow Diagram of Reactor Building Spray System, Rev. 19

Section 1R05: Fire Protection

UFSAR Section 9.5.1, Fire Protection System
OSS-0254.00-00-4008, Design Basis Specification for Fire Protection
RP/0/B/1000/029, Fire Brigade Response, Rev. 016

RP/0/B/1000/001, Emergency Classification, Rev. 025

Oconee Nuclear Station Fire Drill Planning Guide and Critique Form package for the September 11, 2009 fire drill

Fire plan for Zone 106, Unit 1 Cable Room, Auxiliary Building Room 403

Fire plan for ISFSI Facility (Building 8027)

PIP O-09-04952, ISFSI construction area does not fully comply with NSD 104, 313, 314, and 315

PIP O-09-06433, 3rd Quarter Fire Drill Failure

Section 1R06: Flood Protection Measures

2009Q2 Yard trenches Health Report

SD 3.2.16, Control of Passive Design Features, Rev 0

ONDS-0340, Oconee Nuclear Station Auxiliary Building Internal Flood Study

EC101693, Replacement of Class C SSF ASW Piping

Complex Activity Plan OD302153, Excavation along the SSF wall, core drilling through the SSF wall and associated activities in the ASW pump room

Critical Activity Plan EC101693, Tie-in of new ASW piping to existing pipe runs

Section 1R07: Heat Sink Performance

PT/0/A/0160/006, Reactor Building Cooling Units Performance Test, Rev. 32

WO 01851633, PT/0/A/0160/006 U-3 RBCU Performance Test

PIP O-09-04281, RBCU test instrument is giving bad data

Letter dated June 4, 2004, from Leonard N. Olshan, NRC, to Ronald A. Jones, Duke Energy, Oconee Nuclear Station, Unit 2 Re: Issuance of Amendments (TAC No. MC3370)

OSC-8064, ROTSG Long-Term Containment Response Following a Large Break LOCA, Rev. 10

OSC-5667, Reactor Building Cooling Unit Performance Test, Rev. 49

Section 1R11: Licensed Operator Requalification

EP/1/A/1800/001, EOP - IMAs and SAs, Rev. 36

AP/1/A/1700/018, Abnormal Release of Radioactivity, Rev. 18

AP/1/A/1700/002, Excessive RCS Leakage, Rev. 11

OMP 1-18, Implementation Standard During Abnormal and Emergency Events, Rev. 29

Section 1R12: Maintenance Effectiveness

PIP O-09-05612, Banging Noise downstream of 2FDW-432

PIP O-01-03190, Oconee Buried CCW Piping Aging Management Plan is not being implemented as recommended

PIP O-06-04103, Leak discovered in SSF ASW underground piping to Unit 3

PIP O-06-03954, SSF ASW flow indications erratic with pump off

PIP O-06-06672, Performance Deficiencies identified during 2006 INPO E&A. This item relates to Performance Objective & Criteria (PO&C): ER, Proposed Owner: ONS

PIP O-06-03688, Unit 3 aux service water flow gauge in SSF control room is reading between 85-106 gpm

PIP O-06-03710, Trouble shooting SSF Aux Service Water Flow indication problem described in PIP O-06-3688

PIP O-09-05808, U-2 SSF ASW flow indication fluctuating consistently from 60 gpm to 109 gpm

PIP O-06-04287, Unit 2 SSF ASW flow indicating 68 to 70 gpm with pump off

PIP O-06-04486, U-2 SSF ASW flow gauge is reading erratic

PIP O-06-04546, Unit 2 ASW Flow digital gauge reading fluctuating between 000.0 and 45.3 gpm in SSF Control Room
 PIP O-09-06373, ORAM interaction and protected equipment scheme not fully understood for having the SSF OOS
 PIP O-09-06003, Unit 2 Protected Equipment Posting questioned by NRC Inspector
 PIP O-06-03703, Unplanned ORAM red condition occurred when Unit 3 SSF ASW and KHU-2 were out of service at the same time
 PIP O-09-05964, Unexpected response from ORAM for emergent SSF ASW work
 PP-02941, SSF OOS Protected Equipment
 SOMP 02-02, Operations Roles in the Risk Management Process, Rev. 6
 NRC Generic Letter 90-05, Guidance for Performing Temporary Non-Code Repair of ASME Code Class 1, 2, and 3 Piping

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

PIP O-09-1123, HPSW piping was excavated with the intention of connecting a new commercial fire main without following the modification process
 PIP O-09-2665, Issue identified in PIP O-09-1123 regarding excavation of the HPSW header without freeze protection requires clarification
 PIP O-09-05808, U-2 SSF ASW flow indication fluctuating consistently from 60 gpm to 109 gpm
 PIP O-09-06373, ORAM interaction and protected equipment scheme not fully understood for having the SSF OOS
 PIP O-09-06003, Unit 2 Protected Equipment Posting questioned by NRC Inspector
 SOMP 02-02, Operations Roles in the Risk Management Process, Rev. 6

Section 1R18: Plant Modifications

EC101693, Replacement of Class C SSF ASW Piping
 Complex Activity Plan OD302153, Excavation along the SSF wall, core drilling through the SSF wall and associated activities in the ASW pump room
 Critical Activity Plan EC101693, Tie-in of new ASW piping to existing pipe runs

Section 1R19: Post-Maintenance Testing

OFD-133A-3.1, Flow Diagram of Condenser Circulating Water System (CCW Intake Pumps Discharge), Rev. 36
 OFD-130A-3.1, Flow Diagram of Essential Siphon Vacuum (ESV) System, Rev. 6
 OFD-129A-1.1, Flow Diagram of Siphon Seal Water System, Rev. 9

Section 1R20: Refueling and Outage Activities

PIP O-09-6349, During Unit 1 reactor startup after CRD Group 6 reached fully withdrawn, Group 6 Rods 1, 2, 3 and 8 OAC out-limit indication were not lit on the CRD graphic
 OP/1/A/1102/004, Operation at Power, Rev. 122
 OP/1/A/1106/001, Turbine Generator, Rev. 109
 OP/1/A/1102/010, Controlling Procedure for Unit Shutdown; Rev. 191

Section 1R22: Surveillance Testing

OFD-101A-1.3, Flow Diagram of High Pressure Injection System (Charging Section), Rev. 21
 OFD-102A-1.1, Flow Diagram of Low Pressure Injection System (Borated Water Supply and LPI Pump Suction), Rev. 55
 OFD-102A-1.2, Flow Diagram of Low Pressure Injection System (LPI Pump Discharge), Rev. 49

Section 1EP2: Alert and Notification System Testing**Procedures and Manuals**

DPND-1551.00-0001, Emergency Planning Functional Area Manual (EPFAM), Section 3.3, Alert and Notification System (Siren Program), Rev. 10

Records and Data

Records of Silent, Full Cycle, and Growl ANS testing - May 4, 2007, to June 30, 2009
Selected documentation of ANS repair and annual preventative maintenance conducted in accordance with EPFAM section 3.3 - October 10, 2007, to August 24, 2009

Section 1EP3: Emergency Response Organization Augmentation**Procedures**

ERTG-001, Emergency Response Organization and Emergency Services Training Program, Rev. 20

PT/0/B/2000/001, Preparation and Conduct of Emergency Drills, Rev. 014

PT/0/B/2000/002, Periodic Test of Emergency Response Communications Equipment, Rev. 37

NSD-117, Emergency Response Organization Staffing, Training and Responsibilities, Rev. 9

DPND-1551.00-0001, Emergency Planning Functional Area Manual (EPFAM), Section 3.20, Emergency Planner Training & Qualification, Rev. 0

Records and Data

Emergency Response Organization current contact list as of August 31, 2009

Reviewed a sample of training records of key ERO duty roster members

Documentation of the Periodic Test of Emergency Response Communications Equipment, July 7, 2008 - August 4, 2009

Documentation of weekly pager tests, July 3, 2007 - August 11, 2009

Documentation of ERO augmentation drill conducted February 28, 2008 at 1854 hours

Section 1EP4: Emergency Action Level and Emergency Plan Changes**Procedures**

DPND-1551.00-0001, Emergency Planning Functional Area Manual (EPFAM), Section 3.1, Administration of the Emergency Plan and Emergency Plan Implementing Procedures, Rev. 9

DPND-1551.00-0001, Emergency Planning Functional Area Manual (EPFAM), Section 3.10, 10 CFR 50.54(q) Evaluations, Rev. 10

DPND-1551.00-0001, Emergency Planning Functional Area Manual (EPFAM), Section 3.9, Emergency Planning Qualified Reviewer Requirements, Rev. 5

NSD-110, Technical Review and Control, Rev. 10

Change packages for Plans and Procedures

Emergency Plan Volume A, Rev. 2008-02, and 2009-01

RP/0/B/1000/001, Emergency Classification, Rev. 24, and 25

RP/0/B/1000/002, Control Room Emergency Coordinator Procedure, Rev. 19, and 20

RP/0/B/1000/007, Security Event, Rev. 16, and 17

SR/0/B/2000/004, Notification to States and Counties from the Emergency Operations Facility for Catawba, McGuire, and Oconee, Rev. 13, and 14

Section 1EP5: Correction of Emergency Preparedness Weaknesses and Deficiencies Procedures

DPND-1551.00-0001, Emergency Planning Functional Area Manual (EPFAM), Section 3.2, Emergency Planning Business Measures, Rev. 11
NSD-208, Problem Investigation Process, Rev. 031

Audits and Self-Assessments

GO-07-67, 2006 10 CFR 50.54(q) Evaluations, June 21, 2007
GO-07-20(NPA)(EP)(ALL), 2007 Emergency Planning Functional Area Evaluation, October 22-25, 2007
08-06(INOS)(EP)(ONS), 2008 Emergency Planning Regulatory Program Audit, May 12-22, 2008
09-104(INOS)(EP)(ONS), 2008 Emergency Planning Performance Review, January 19 - February 6, 2009

Records and Data

Documentation (logs, timeline, notification forms, critique report, corrective actions) of ERO drills
07-04, 08-04, 08-01, 09-01, 09-02

PIPs

O-07-05663, 4th Qtr Drill 2007-06
O-07-06549, 4th Qtr Drill 2007-05
O-08-00607, 1st Qtr Drill 2008-01
O-08-00608, 1st Qtr Drill 2008-01
O-08-01304, Evaluate lessons learned from failed fire drill
O-08-01881, Public address system was out of service for approximately 2 days
O-08-06018, 3rd Qtr Drill 2008-03 RSPS notification failure
O-09-01556, 1st Qtr Drill 2009-01
O-09-00761, Revision to Critique report 2008-05 due to incorrect statement regarding Performance Indicators
O-09-02017, Revision required for NRC Performance Indicator for Emergency Preparedness
O-09-06200, ONS Emergency Plan allows for ERO training grace period
O-09-06185, LMS data not being integrated into ONS ERO list
O-09-06196, Non-qualified personnel being added to EOF ERO positions
O-09-06300, NRC Performance Indicator error identified affecting DEP PI

Section 1EP6: Drill Evaluation

RP/0/B/1000/001, Emergency Classification, Rev. 025
PIP O-09-6286, Documentation of the results of ONS Emergency Planning Drill 2009-04 conducted on 8/25/09

Section 40A1: Performance Indicator Verification

Procedures

DPND-1551.00-0001, Emergency Planning Functional Area Manual (EPFAM), Section 3.7, Rev. 15

Records and Data

Siren System Availability Test Records, January 1, 2008, through June 30, 2009
 ERO Personnel Participation, January 1, 2008, through June 30, 2009
 DEP Opportunities, January 1, 2008, through June 30, 2009

Section 40A2: Identification and Resolution of Problems

PIP O-97-1266, EFWD control system deficiencies
 PIP O-96-1724, Manual load shedding of DC loads required for DC system integrity
 PIP O-08-7869, Operations lead performing ODMI to clarify Unit 1 Reactor Coolant Pump seal performance during the current operating cycle
 NSD-506, Operator Workaround, Rev. 4, Appendix C, Aggregate Assessment dated 7/28/09
 ST1613 OSTICK Audit Report dated 6/9/09 and 8/6/09
 OMP 2-16, Attachment C, Unit Shift Turnover Sheet dated 8/6/09

Section 40A3: Event Follow-upUnit 1 Forced Outage

PIP O-09-3451, 1FWD-41 demand from ICS has reached ~100%
 PIP O-09-6173, Unexpected Response on 1FWD-41
 OP/1/A/1102/004, Operation at Power, Rev. 122
 OP/1/A/1106/001, Turbine Generator, Rev. 109
 OP/1/A/1102/010, Controlling Procedure for Unit Shutdown; Rev. 191
 Failure Identification Process (FIP) package for 1FWD-41 demand vs. position differences

LER 05000269/2009-01

PIP O-09-4185, Past SFP fuel storage configurations identified in PIP O-08-5709 Corrective Action 10 have been determined to not be in accordance with TS 3.7.13

LER 05000287/2009-002

NSD-703, Administrative Instructions for Technical Procedures
 PIP O-09-03845, Anticipatory Unit Trip received unexpectedly
 HU-4 Transformer Differential Relays Instruction Leaflet

LER 05000269/2008001-00

IN 88-23, Potential for Gas Binding of HPSI Pumps during a LOCA
 GL 2008-01, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems
 PIP O-98-0037, This PIP will document the station's response to the recommendations associated with SOER 97-01
 PIP O-98-1675, Engineering evaluation required for need for HPI Pump suction lines vent valves
 PIP O-99-0098, HPI Suction venting procedures could be enhanced.
 PIP O-99-3288, An OEA assessment was performed to evaluate the McGuire, Catawba, and Oconee responses to selected SOER recommendations and selected operating experience items in an effort to ensure commitments made to attain compliance are adequate and have been successfully implemented. The team also assessed the scope and timeliness of the sites responses, while also identifying areas for improvement that may aid in effectively responding to future SOERs.

PIP O-02-3325, This PIP is the result of an industry operating experience issue (Reference OE13980 and OEDB 02-030401). This PIP is being written to evaluate Oconee's susceptibility to a similar gas intrusion occurrence. As a result of this PIP, a corrective action should be assigned to MCE (Primary Systems) to perform this evaluation.

PIP O-05-6408, The purpose of this PIP is to document the results of the 2005 Oconee SOER Effectiveness Review, Assessment Number: GO-05-81(OEA)(SOER Review)(ONS)

PIP O-08-0407, NRC Generic Letter 2008-01, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems was issued on January 11, 2008

PIP O-08-5075, NRC GL 08-01 evaluation identified potential trapped air pockets in the "B" BS headers upstream of BS-2 valves

PIP O-08-5537, While performing Generic Letter 08-01 confirmatory UT inspections a void of less than 0.002 ft³ was located in a captive high point between valve 3LPI-17 and Penetration 15.

PIP O-08-5580, Air pocket discovered in 2A RBS piping

PIP O-08-5590, During UT examinations performed in response to Generic Letter 08-01, a portion of the 2A LPI discharge header was discovered to have a small air pocket.

PIP O-08-5591, Air pocket in 1A LPI discharge header

PIP O-08-5596, Air pocket in decay heat drop line

PIP O-08-5600, Gas void discovered in HPI suction piping

PIP O-08-6527, During monthly UT inspection of HPI/LPI/RBS Piping Vent per PT/3/A/0203/012 discovered voiding in HPI suction piping.

PIP O-08-6548, Inadequate IDO regarding HPI suction piping voiding.

OP/1/A/1104/002, HPI System

OP/1/A/1104/002D, Restoration of HPI Injection

PT/1/A/0251/024, HPI Full Flow Test

PT/1/A/0203/012, HPI/LPI/RBS Piping Venting

OSS-0254.00-00-1001, Design Basis Specification for the High Pressure Injection and Purification & Deborating Demineralizer Systems, Rev. 43

Drawing OFD 101A-1.2, Flow Diagram of HPI System (Storage Section)

Drawing OFD 101A-1.3, Flow Diagram of HPI System (Charging Section)

LTR-0079-0131-01, MPR Associates Inc. Results of Gas Void Transport Analysis in Oconee HPI System

Duke Energy Carolinas Letter to USNRC, dated October 13, 2008, Generic Letter 2008-01, 9-Month Response (ADAMS Accession No. ML082900490)

Section 40A5: Other Activities

ONEI-0400-305, Oconee Nuclear Station DSC 107 (1-70), Rev. 1

PIP O-09-04559, Damaged to HSM Module W44