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

January 31, 2008

EA-08-037

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

SUBJECT: OCONEE NUCLEAR STATION - INTEGRATED INSPECTION REPORT 05000269/2007005, 05000270/2007005, 05000287/2007005

Dear Mr. Baxter:

On December 31, 2007, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Oconee Nuclear Station. The enclosed report documents the inspection findings which were discussed on January 09, 2008, with Mr. 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.

This report documents two findings (one self-revealing and one NRC-identified) of very low safety significance (Green) which were determined to be violations of NRC requirements. In addition, two licensee-identified violations are also listed in this report. However, because of their very low safety significance and because they have been entered into your corrective action program, the NRC is treating these violations as non-cited violations (NCVs) in accordance with Section VI.A.1 of the NRC's 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 the Oconee facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure 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/

James H. Moorman, III Chief
Reactor Projects Branch 1
Division of Reactor Projects

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

Enclosure: NRC Integrated Inspection Report 05000269/2007005, 05000270/2007005, 05000287/2007005 w/Attachment: Supplemental Information

cc w\encl.: (See page 3)

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure 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/

James H. Moorman, III Chief
Reactor Projects Branch 1
Division of Reactor Projects

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

Enclosure: NRC Integrated Inspection Report 05000269/2007005, 05000270/2007005, 05000287/2007005 w/Attachment: Supplemental Information

cc w\encl: (See page 3)

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

ADAMS: X Yes ACCESSION NUMBER:_______________________

OFFICE	RII:DRP	RII:DRP	RII:DRP	RII:DRP	RII:DRS	RII:DRS	
SIGNATURE	DWR /RA/	GAH /RA/	ETR /RA/	JHM /RA/	AVM /RA/	AVM /RA for/	
NAME	DRich	GHutto	ERiggs	JMoorman	AVargasMendez	MCoursey	
DATE	01/25/2008	01/25/2008	01/25/2008	01/24/2008	01/25/2008	01/25/2008	
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY DOCUMENT NAME: C:\FileNet\ML080350435.wpd

cc w/encls: B. G. Davenport

Compliance Manager (ONS)
Duke Power Company LLC
d/b/a Duke Energy Carolinas, LLC
Electronic Mail Distribution

Lisa F. Vaughn
Associate General Counsel
and Managing Attorney
Duke Energy Corporation
526 South Church Street-EC 07H
Charlotte, NC 28202

Kathryn B. Nolan
Senior Counsel
Duke Energy Corporation
526 South Church Street -EC07H
Charlotte, NC 28202

David A. Repka
Winston & Strawn LLP
Electronic Mail Distribution

Beverly Hall, Chief Radiation
Protection Section
N. C. Department of Environmental
Health & Natural Resources
Electronic Mail Distribution

Henry J. Porter, Assistant Director
Div. of Radioactive Waste Mgmt.
S. C. Department of Health and
Environmental Control
Electronic Mail Distribution

R. Mike Gandy
Division of Radioactive Waste Mgmt.
S. C. Department of Health and
Environmental Control
Electronic Mail Distribution

County Supervisor of
Oconee County
415 S. Pine Street
Walhalla, SC 29691-2145

Lyle Graber, LIS
NUS Corporation
Electronic Mail Distribution

R. L. Gill, Jr., Manager
Nuclear Regulatory Issues
and Industry Affairs
Duke Power Company LLC.
d/b/a Duke Energy Carolinas, LLC
526 S. Church Street
Charlotte, NC 28201-0006

Charles Brinkman
Director, Washington Operations
Westinghouse Electric Company
12300 Twinbrook Parkway, Suite 330
Rockville, MD 20852

Letter to David Baxter from James H. Moorman, III dated January 31, 2008

SUBJECT: OCONEE NUCLEAR STATION - INTEGRATED INSPECTION REPORT 05000269/2007005, 05000270/2007005, 05000287/2007005

Distribution w/encl:
L. Olshan, NRR
C. Evans, RII
L. Slack, RII
OE Mail
RIDSNRRDIRS
PUBLIC

U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos:	50-269, 50-270, 50-287
License Nos:	DPR-38, DPR-47, DPR-55
Report No:	05000269/2007005, 05000270/2007005, 05000287/2007005
Licensee:	Duke Power Company LLC
Facility:	Oconee Nuclear Station, Units 1, 2, and 3
Location:	7800 Rochester Highway Seneca, SC 29672
Dates:	October 1, 2007 - December 31, 2007
Inspectors:	D. Rich, Senior Resident Inspector A. Hutto, Resident Inspector E. Riggs, Resident Inspector A. Vargas-Mendez, Reactor Inspector (Sections 1R08, 4OA7) M. Coursey, Reactor Inspector (Sections 1R08, 4OA7)
Approved by:	James H. Moorman, III, Chief Reactor Projects Branch 1 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000269/2007005, IR 05000270/2007005, IR 05000287/2007005, 10/01/2007 - 12/31/2007; Oconee Nuclear Station, Units 1, 2, and 3; Refueling & Outage Activities.

The report covered a three-month period of inspection by the three onsite resident inspectors and two regional reactor inspectors. Two Green non-cited violations (NCVs) were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC Identified and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. A self-revealing non-cited violation (NCV) of Technical Specification (TS) 5.4.1 was identified for failure to establish and implement an adequate procedure for loss of the Unit 3 spent fuel pool (SFP) cooling and/or level. More specifically, Abnormal Procedure AP/3/A/1700/035, Loss of SFP Cooling and/or Level, did not reflect the dependency that Unit 3 SFP cooling has on condenser circulating water (CCW) booster pump flow. If it had, the unexpected Unit 3 SFP temperature increase on December 1, 2007, could have been mitigated in a more timely manner and the SFP temperature increase limited to a lower value.

  The licensee's failure to adequately establish and implement the procedure for loss of spent fuel pool cooling was a performance deficiency. The finding was considered to be more than minor because it affected the initiating events cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions. The finding was not suitable for SDP evaluation, but was reviewed by NRC management and was determined to be of very low safety significance, because the rate of SFP heatup was low (10 degrees F in four hours), the operators demonstrated the ability to restore CCW booster pump flow within a relatively short time period with respect to the heatup rate, and the Unit 1 and 2 recirculating cooling water (RCW) system was available to be lined up to supply cooling to the Unit 3 SFP cooling heat exchangers per existing plant procedures if needed.

  This finding was entered into the licensee's corrective action program. It had a cross-cutting aspect of complete, accurate, and up-to-date procedures (H.2.c), as described in the resources component of the human performance cross-cutting area. (Section 1R20b.(1))

Cornerstone: Barrier Integrity

- Green. The inspectors identified an NCV of TS 5.4.1 for the failure to establish and implement adequate procedures for containment closure following a potential loss of decay heat removal (LDHR) event. More specifically, existing procedures did not adequately address control of vehicles blocking the equipment hatch opening, as was the case on October 31, 2007.

The licensee's failure to implement adequate procedures to close the equipment hatch in the event of a LDHR was considered to be a performance deficiency. The finding was determined to be more than minor as it was associated with the barrier integrity cornerstone attribute of procedure quality, thereby impacting the associated cornerstone objective of providing reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. The inspectors reviewed this finding in accordance with IMC 0609, Appendix G, Shutdown Operations Significance Determination Process, Attachment 1, Checklist 3. This finding did not meet the criteria in the checklist for requiring a Phase 2 or 3 analysis, and was therefore determined to be of very low safety significance.

This finding was entered into the licensee's corrective action program. It had a cross-cutting aspect of complete, accurate, and up-to-date procedures (H.2.c), as described in the resources component of the human performance cross-cutting area. (Section 1R20b.(2))

B. Licensee-Identified Violations

Two violations of very low safety significance, which were identified by the licensee, have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations are listed in Section 4OA7.

REPORT DETAILS

Summary of Plant Status:

Unit 1 began the report period at 100 percent rated thermal power (RTP). On October 12, 2007, the unit was reduced to 20 percent RTP to add oil to the 1B1 and 1B2 reactor coolant pumps. The unit was returned to 100 percent RTP on October 13, 2007, where it remained until the end of the inspection period.

Unit 2 began the report period at 100 percent RTP. On November 23, 2007, the unit was reduced to approximately 88 percent RTP for turbine valve movement testing. The unit was returned to 100 percent RTP on November 24, 2007, where it remained until the end of the inspection period.

Unit 3 began the report period at 100 percent RTP. On October 16, 2007, the unit began an end-of-cycle (EOC) coast down until October 26, when it was shutdown from 87 percent RTP for refueling outage EOC 23. On December 16, 2007, Unit 3 was taken critical following outage activities and achieved 100 percent RTP on December 23, 2007, where it remained until the end of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

Cold Weather Preparations

a. Inspection Scope

The inspectors reviewed the licensee's preparations for adverse weather associated with cold ambient temperatures for the three risk significant systems listed below. This included field walkdowns to assess the material condition and operation of freeze protection equipment (e.g., heat tracing, instrument box heaters, area space heaters, etc.), as well as other preparations made to protect plant equipment from freeze conditions. In addition, the inspectors conducted discussions with operations, engineering, and maintenance personnel responsible for implementing the licensee's cold weather protection program to assess the licensee's ability to identify and resolve deficient conditions associated with cold weather protection equipment prior to cold weather events. Documents reviewed during this inspection are listed in the Attachment to this report.

- Essential Siphon Vacuum System
- Unit 1, 2 and 3 Borated Water Storage Tank Level Instrumentation
- Elevated Water Storage Tank Level Instrumentation

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

.1 Partial Walkdown

a. Inspection Scope

The inspectors conducted partial equipment alignment walkdowns to evaluate the operability of selected redundant trains or backup systems while the other train or system was inoperable or out-of-service (OOS). The walkdowns included, as appropriate, reviews of plant procedures and other documents to determine correct system lineups, and verification of critical components to identify any discrepancies which could affect operability of the redundant train or backup system. Documents reviewed are listed in the Attachment to this report. The following three systems were included in this review:

- 3A and 3B Motor Driven Emergency Feedwater pumps with the Unit 3 Turbine Driven Emergency Feedwater (TDEFW) pump OOS for maintenance
- Unit 1/2/3 TDEFW pumps with the Standby Shutdown Facility (SSF) Auxiliary Service Water pump OOS for maintenance
- Keowee Hydro Unit (KHU) 1 with KHU 2 OOS for 6 month preventive maintenance (PM)

b. Findings

No findings of significance were identified.

.2 Complete Walkdown of the Unit 3 Emergency Feedwater System (EFW)

a. Inspection Scope

The inspectors performed a system walkdown on accessible portions of the Unit 3 EFW system. The inspectors focused on verifying proper valve and breaker positioning, power availability, no damage to piping or cable tray structural supports, and material condition.

A review of Problem Investigation Process reports (PIPs) and open maintenance work orders was performed to verify that material condition deficiencies did not significantly affect the EFW system's ability to perform its design functions and appropriate corrective action was being taken by the licensee.

The inspectors conducted a review of the system engineer's trending data and system health reports to verify that appropriate trending parameters were being monitored and that no adverse trends were noted. Documents and drawings reviewed for this semi-annual inspection sample are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

Fire Area Walkdowns

a. Inspection Scope

The inspectors conducted tours in eleven areas of the plant to verify that combustibles and ignition sources were properly controlled, and that fire detection and suppression capabilities were intact. The inspectors selected the areas based on a review of the licensee's safe shutdown analysis and the probabilistic risk assessment based sensitivity studies for fire-related core damage sequences. Documents reviewed are listed in the Attachment to this report. Inspections of the following areas were conducted during this inspection period:

- Unit 1 and 2 Low Pressure Injection (LPI) Pump Rooms (3)
- Unit 1 and 2 High Pressure Injection (HPI) Pump Rooms (1)
- Unit 1 and 2 Penetration Rooms (4)
- CT-5 Transformer (1)
- Unit 1, 2, and 3 Blockhouses (2)

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (Internal)

a. Inspection Scope

The inspectors reviewed the licensee's turbine building flood control measures while performing Unit 3 condenser maintenance during its refueling outage commencing in October 2007. The inspectors determined that the licensee complied with the applicable Unit 1 waterbox and condenser circulating water (CCW) inlet and outlet de-watering and watering operating procedures (OP/1/A/1104/012 E and G). The inspectors also walked down the appropriate CCW valve isolations to verify that they were established per Selected Licensee Commitments 16.9.11.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection (ISI) Activities

.1 Piping Systems ISI

a. Inspection Scope

From November 5-16, 2007, the inspectors reviewed the implementation of the licensee's ISI program for monitoring degradation of the reactor coolant system (RCS) boundary and risk significant piping system boundaries. The inspectors reviewed a sample from activities performed during the Unit 3 Fall 2007 refueling outage including non-destructive examinations (NDE) required by the 1998 Edition, 2000 Addenda, of American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, and augmented examination commitments.

The inspectors observed and reviewed non-destructive examination (NDE) activities. Specifically:

Ultrasonic Examination (UT):

- Low Pressure Injection flange to pipe, weld # 3-LPS-0762-1
- 2B Steam Generator main steam line pipe to nozzle
- 3A Steam Generator nozzle to pipe weld, weld # 3SGA-W3
- 3B Steam Generator reducer to nozzle, weld # 3MS-137-19V
- 3B Steam Generator reducer to nozzle, weld # 3MS-137-22V

Liquid Penetrant Testing (LPT):

- High Pressure Injection elbow to pipe, weld #'s 3HP-252-5
- High Pressure Injection pipe to flange, weld #'s 3HP-252-4A

Visual Examination (VT):

- Reactor Vessel (RV) Head Penetrations
- RV Closure Head Control Rod Drive Mechanism Nozzle Penetration

Magnetic Particle Testing (MT):

- 2B Steam Generator main steam line pipe to nozzle
- Reactor Coolant System pipe to elbow, weld #3RC-283-8V
- 3A Steam Generator nozzle to pipe weld, weld # 3SGA-W3

Qualification and certification records for examiners, inspection equipment, and consumables along with the applicable NDE procedures for the previously referenced ISI examination activities were reviewed and compared to requirements stated in ASME Section V, ASME Section XI, and other industry standards.

The inspectors reviewed welding activities from the previous outage. The inspectors reviewed drawings, work instructions, weld process sheets, weld travelers, pre-heat requirements and NDE for welding of an ASME Class 1 and 2 pressure boundary weld. Specific items included:

- Radiograph Examination (RT): Letdown cooler chemical seal connector, weld #: 1-44773-1-8
- LPT: 3B letdown cooler, weld #: 3HP0503-31
- LPT/UT: Low pressure service water piping, weld #: 3LPS-0762-1, 3LPS-076-2

The inspectors reviewed and observed weld overlay and NDE activities associated with the Pressurizer weld overlay activities. Specifically welding and LPT for Pressurizer Safety Relief Valves:

- PZR-WP-91-1
- PZR-WP-91-2
- PZR-WP-91-3

b. Findings

No findings of significance were identified.

.2 Boric Acid Corrosion Control (BACC) Program

a. Inspection Scope

The inspectors reviewed the licensee's Boric Acid Corrosion Control (BACC) program to ensure compliance with commitments made in response to NRC Generic Letter 88-05, Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary Components in PWR Plants.

The inspectors conducted an on-site record review, as well as an independent walkdown of parts of the reactor building that are not normally accessible during at-power operations, to evaluate compliance with licensee BACC program requirements and 10CFR Part 50, Appendix B, Criterion XVI, Corrective Action, requirements. In particular, the inspectors assessed whether the visual examinations focused on locations where boric acid leaks can cause degradation of safety-significant components and that degraded or non-conforming conditions were properly identified in the licensee's corrective action system.

The inspectors reviewed a sample of engineering evaluations completed for boric acid found on reactor coolant system piping and components to verify that the minimum design code-required section thickness had been maintained for the affected components. The inspectors also reviewed licencee PIPs and corrosion assessments implemented for evidence of boric acid leakage to confirm that they were consistent with requirements.

b. Findings

No findings of significance were identified.

.3 Steam Generator (SG) Tube ISI

a. Inspection Scope

The inspectors reviewed the SG examination scope, expansion criteria, eddy current testing (ET) acquisition procedures, ET analysis procedures, the SG Operational Assessment, in-situ tube pressure testing procedures, and records and examination reports to confirm that:

- The SG tube ET scope was sufficient to identify tube degradation, confirming that the ET scope completed was consistent with the licensee's procedures and plant TS requirements. In addition, the inspectors reviewed the SG tube ET scope to determine that it was consistent with that recommended in EPRI "Pressurized Water Reactor Steam Generator Examination Guidelines," Revision 6, and included tube areas which represent ET challenges, such as the tube sheet regions, expansion transitions and support plates.

- The ET probes and equipment configurations used to acquire ET data from the SG tubes were qualified to detect the known/expected types of SG tube degradation in accordance with Appendix H, "Performance Demonstration for Eddy Current Examination," of EPRI "Pressurized Water Reactor Steam Generator Examination Guidelines," Revision 6.

- The licensee adequately evaluated for any contractor deviations from their ET data acquisition or analysis procedures or EPRI "Pressurized Water Reactor Steam Generator Examination Guidelines," Revision 6.

b. Findings

No findings of significance were identified.

.4 Identification and Resolution of Problems

a. Inspection Scope

The inspectors performed a review of SG and ISI-related problems that were identified by the licensee and entered into the corrective action program. The inspectors reviewed these corrective action program documents to confirm that the licensee had appropriately described the scope of the problems. In addition, the inspectors' review included confirmation that the licensee had an appropriate threshold for identifying issues and had implemented effective corrective actions. The inspectors evaluated the threshold for identifying issues through interviews with licensee staff and review of licensee actions to incorporate lessons learned from industry issues related to the ISI program. The inspectors performed these reviews to ensure compliance with 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

Simulator Training

a. Inspection Scope

The inspectors observed licensed operator simulator training on October 19, 2007. The scenario involved training on emergency operating procedure rules one through five. This basis for specific actions in each rule was discussed, and the operator's proficiency in mitigating associated events was exercised. The inspectors observed crew performance in terms of communications; ability to take timely and proper actions; prioritizing, interpreting, and verifying alarms; correct use and implementation of procedures, including the alarm response procedures; timely control board operation and manipulation, including high-risk operator actions; and oversight and direction provided by the shift supervisor, including the ability to identify and implement appropriate Technical Specification (TS) actions and properly classify the simulated event.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed 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, as well as common cause failure evaluations. For each item selected, the inspectors performed a detailed review of the problem history and surrounding circumstances, evaluated the extent of condition reviews as required, 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 in light of the reviewed degraded equipment condition. The inspectors reviewed the following items:

- PIP O-07-4674, 2A High Pressure Injection Pump Shaft/Seal Overheating Due to Throttle Bushing Contact
- PIP O-07-6179, 3CCW-79 Actuator Needs to be Replaced

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessment and Emergent Work Evaluations

a. Inspection Scope

For the six selected SSCs and activities listed below, the inspectors evaluated the following attributes: (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.

- PIP O-07-5669, SSF Unavailable Due to Heating, Ventilation and Cooling Control Timer Failures
- PIP O-07-5705, KHU 1 Governor Oil Pump Operability With Scheduled Yellow Bus Maintenance
- PIP O-07-5829, Potential Orange Risk Condition With 3A LPI OOS and Instrument Air Valve 3IA-91 Open
- Orange Operational Risk Assessment Management Risk Condition, SSF Monthly PMs During Unit 3 EOC 23 (Auxiliary Building/Turbine Building Flood)
- Critical Action Plan for SSF Monthly Diesel Surveillance During Unit 3 EOC 23
- 230 KV Switchyard Work (PCB-8 PMs) with the Keowee Overhead Path OOS

b. Findings

Inspectors noted one licensee identified violation associated with PIP O-07-5829, which is documented in Section 4OA7 of this report.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed selected operability evaluations affecting risk significant systems, to assess, as appropriate: (1) the technical adequacy of the evaluations; (2) whether continued system operability was warranted; (3) whether other existing degraded conditions were considered; (4) whether identified compensatory measures were in place, would work as intended, and were appropriately controlled; and (5) the impact on TS limiting conditions for operation, where continued operability was considered unjustified. Documents reviewed are listed in the Attachment to this report. The inspectors reviewed the following seven operability evaluations:

- PIP O-07-5593, KHU Governor Control System Critical Alarms
- PIP O-07-5711, Unit 3 Voltage and Load Margin Assessment

- PIP O-07-5786, Foreign Material Found in the 3A LPI Cooler When Opened for Cleaning and Eddy Current Inspection
- PIP O-07-5872, 2B LPI Pump Inboard Bearing Oil Bubbler Emptied Twice During Post-Maintenance Testing Following Lubrication PM
- PIP O-07-6053, Uninterruptible Power Supply Failure
- PIP O-07-6149, Keowee Main Transformer Fan OOS
- PIP O-07-6314, 3PAM MT0080 Was Found Out of Tolerance

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (PMT)

a. Inspection Scope

The inspectors reviewed PMT procedures and/or test activities, as appropriate, for selected risk significant systems to assess whether: (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 operational readiness was adequately demonstrated 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) installed jumpers or lifted leads 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 to this report. The inspectors observed testing and/or reviewed the results of the following five tests:

- PT/2/A/0203/006A, 2B Low Pressure Injection Pump Test – Recirculation Following Mechanical Seal Cleaning and Pump Lubrication
- PT/3/A/0600/012, Unit 3 TDEFW Pump Test Following the Addition of Stiffeners to the Turbine Support Frame (OD301925)
- PT/1/A/0230/015, High Pressure Injection Motor Cooler Flow Test Following the Relocation of the Low Pressure Service Water (LPSW) Emergency Supply Cuno Filter (OD101743)
- PT/1/A/0251/001, Low Pressure Service Water Pump Test Following a Repack of the Unit 1/2 A Pump
- PT/3/A/0610/028, Main Feeder Bus Lockout Relay Test Following Relay 62BXS23 Replacement

b. Findings

No findings of significance were identified.

1R20 Refueling & Outage Activities

a. Inspection Scope

The inspectors conducted reviews and observations for selected outage activities to ensure that: (1) the licensee considered risk in developing the outage plan; (2) the licensee adhered to the outage plan to control plant configuration based on risk; (3) that mitigation strategies were in place for losses of key safety functions; and (4) the licensee adhered to operating license and TS requirements. Between October 27, 2007, and December 22, 2007, the following activities related to the Unit 3 EOC 23 refueling outage were reviewed for conformance to applicable procedures and selected activities associated with each evaluation were witnessed:

- outage risk management plan/assessment
- clearance activities
- reactor coolant system instrumentation
- plant cooldown
- mode changes from Mode 1 (power operation) to No Mode (defueled)
- shutdown decay heat removal and inventory control
- containment closure
- refueling activities
- plant heatup/mode changes
- core physics testing
- power escalation

Additionally, in response to operational experience concerns regarding reactor vessel (RV) head lifts (NRC Operating Experience Smart Sample FY2007-03), the inspectors reviewed licensee programs and procedures to determine whether current practices were within the current licensing basis. The inspectors reviewed licensee programs relating to Generic Letter 80-113, Control of Heavy Loads, and NUREG 0612, Control of Heavy Loads at Nuclear Power Plants, and interviewed licensee personnel.

b. Findings

(1) Inadequate Loss of Spent Fuel Pool Cooling Abnormal Procedure

Introduction: A Green self-revealing NCV of TS 5.4.1 was identified for failure to establish and implement an adequate procedure for loss of the Unit 3 spent fuel pool (SFP) cooling and/or level.

Description: On December 1, 2007, Unit 3 was in no mode with the core off-loaded to the Unit 3 SFP when a degraded flow condition occurred in the CCW booster pump flow to the recirculating cooling water (RCW) heat exchangers. This in turn had an effect on SFP cooling, since RCW removes heat from the SFP cooling heat exchangers. The degraded flow was a result of air entrainment by the Unit 3 CCW booster pumps when the Unit 3 CCW header was refilled at approximately 1300 hours. There were no CCW booster pump flow alarms available to the operators in the control room; therefore, this condition was not initially recognized. At approximately 3:00 pm, the Unit 3 operator at the controls noted that the SFP temperature had increased from 96 degrees F to 99 degrees F. SFP temperature continued to increase to 103 degrees F by 4:00 pm. During the time of the SFP temperature increase, the operators reviewed AP/3/A/1700/035, Loss of SFP Cooling and/or Level, but never entered the procedure, even though one of the entry conditions was an unexpected increase in SFP temperature. Additionally, the AP does not provide instructions to check CCW booster pump flow, even though this flow is the ultimate heat sink for spent fuel decay heat.

At 4:00 pm, control room operators checked CCW booster pump flows and determined that the flow was degraded (approximately 300 gpm verses an expected 2500 gpm). The operators correlated the restoration alignment to the SFP temperature increase and operators were dispatched to stop and vent the CCW booster pumps one at a time, as well as the pump suction strainer. This action re-established adequate CCW booster pump flow to the RCW coolers and the SFP temperature eventually decreased to its original value. The maximum SFP temperature resulting from this event was approximately 106 degrees F, for a 10 degree F increase over a four hour period. Had the operators complied with the entry conditions of AP/3/A/1700/035 and entered the AP when the unexpected SFP temperature was recognized, and had the procedure contained instructions to check CCW booster pump flow to RCW, the condition could have been mitigated in a more timely manner and the SFP temperature increase limited to a lower value. Without adequate procedural guidance, the operators relied on plant knowledge to diagnose the reduced CCW booster pump flow.

<u>Analysis</u>: The inspectors determined that the licensee's failure to adequately establish and implement the procedure for loss of spent fuel cooling was a performance deficiency. The finding was considered to be more than minor because it affected the initiating events cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions. The finding was not suitable for SDP evaluation, but was reviewed by NRC management and was determined to be a finding of very low safety significance (Green), because the rate of SFP heatup was low (10 degrees F in four hours), the operators demonstrated the ability to restore CCW booster pump flow within a relatively short time period with respect to the heatup rate, and the Unit 1 and 2 RCW system was available to be lined up to supply cooling to the Unit 3 SFP cooling heat exchangers per existing plant procedures if needed. This finding had a cross-cutting aspect of complete, accurate, and up-to-date procedures (H.2.c), as described in the resources component of the human performance cross-cutting area.

<u>Enforcement</u>: TS 5.4.1 requires that procedures shall be established, implemented and maintained covering the applicable procedures recommended in Regulatory Guide 1.33. Regulatory Guide 1.33, Appendix A, Section 5, requires procedures for abnormal, off normal, or alarm conditions. Contrary to the above, the licensee failed to adequately establish and implement the abnormal operating procedure for loss of spent fuel cooling. Because the finding was determined to be of very low safety significance and has been entered into the licensee's corrective action program as PIP O-07-7069, this violation is

being treated as a NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000287/2007005-01, Inadequate Loss of Unit 3 SFP Cooling Procedure.

(2) Inadequate Containment Closure Procedures

Introduction: The inspectors identified a Green NCV of TS 5.4.1 for the failure to establish and implement adequate procedures for containment closure following a potential loss of decay heat removal (LDHR) event.

Description: On October 27, 2007, Unit 3 was shutdown for a planned refueling outage. On October 31, 2007, with the unit in Mode 5, the equipment hatch open, the reactor coolant system vented, and a core-boil time of 23.3 minutes, the inspectors identified a tractor-trailer rig parked in the equipment hatch opening. The rig was unattended and was blocking the equipment hatch and missile shield doors. Security personnel at the hatch and maintenance personnel stationed to close the hatch in an emergency were not aware of the location of the tractor operators or the keys. The licensee subsequently found that the vehicle operators were at another location on the plant site.

Site Directive 1.3.5, Shutdown Protection Plan, required that with a core-boil time of less than 30 minutes, designated maintenance personnel must be pre-positioned outside of the equipment hatch for immediate initiation of hatch closure activities per AM/0/A/1400/002B (Equipment Hatch - Reactor Building - Emergency Closing) in the event of a loss of decay heat removal. The inspectors noted these personnel were stationed as required, but that procedures did not address control of vehicles blocking the hatch opening. The Shutdown Protection Plan provided a time requirement to achieve containment closure based on time to core boil and habitability time. The required closure time on October 31 was 53.3 minutes. When interviewed, maintenance personnel stated if necessary, they would remove the vehicle with the crane provided to handle the equipment hatch. This plan was somewhat re-enforced by prerequisite 6.8 of procedure AM/0/A/1400/002B, which stated, “Use mobile crane to clear hatch area.” In an emergency, this may have been a success path. However, no specific procedures, rigging, or training had been provided for this purpose. With a large, unattended vehicle blocking the equipment hatch, there was less than adequate assurance that maintenance personnel could remove the vehicle and shut the equipment hatch within the required time.

The licensee estimated that the average containment temperature would reach 110 degrees F approximately 68.3 minutes after a loss of decay heat removal, assuming loss of all containment cooling. The inspectors acknowledged that 68 minutes was a reasonable estimate of the time required to remove the vehicle and shut the equipment hatch. The inspectors also noted additional margin was available, as temperatures at the hatch would be lower than average building temperature, the required tasks could be completed at temperatures above 110 degrees F, and core uncovery and damage would not occur until several hours into the event.

As immediate corrective action, the licensee improved pre-shift briefings of personnel designated to control containment openings, including temporary measures to control obstructions at containment openings.

Analysis: The licensee's failure to implement adequate procedures to close the equipment hatch in the event of a LDHR was considered to be a performance deficiency. The finding was determined to be more than minor as it is associated with the barrier integrity cornerstone attribute of procedure quality; thereby, impacting the associated cornerstone objective of providing reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. The inspectors reviewed this finding in accordance with IMC 0609, Appendix G, Shutdown Operations Significance Determination Process, Attachment 1, Checklist 3. This finding did not meet the criteria in the checklist for requiring a phase 2 or 3 analysis, and was therefore determined to be of very low safety significance (Green). This finding had a cross-cutting aspect of complete, accurate, and up-to-date procedures (H.2.c), as described in the resources component of the human performance cross-cutting area.

Enforcement: TS 5.4.1 requires that written procedures shall be established, implemented, and maintained covering activities related to procedures recommended in Regulatory Guide 1.33, Rev. 2, Appendix A, 1978. Regulatory Guide 1.33 requires procedures for maintaining containment integrity. Contrary to the above, the licensee failed to implement adequate procedures to establish and maintain containment closure during a potential loss of decay heat removal event. The established procedures failed to provide control of obstructions in the equipment hatch, such that obstructions could be rapidly removed during an event. Because this violation is of low safety significance and has been entered into the licensee's corrective action program as PIP O-07-6083, it is being treated as a NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000287/2007005-02, Failure to Establish Adequate Procedures for Containment Closure Following a Loss of Decay Heat Removal Event.

(3) Review of Heavy Lift Practices

The inspectors identified the following issues:

- The licensee could not demonstrate that the Updated Final Safety Analysis Report (UFSAR) had been adequately updated to reflect information and analyses provided to the NRC in response to generic communications regarding heavy loads.

- The licensee could not demonstrate that their RV head lifts, which lift the head to approximately 7 feet above the reactor vessel flange, were bounded by any design calculations which evaluated the drop of the head through air onto the RV, upper internals, and irradiated fuel.

- The licensee could not demonstrate that their procedures for the RV head removal and installation ever limited their head lifts to the bounds contained in an June 22, 1982, letter sent to the NRC concerning a load drop analysis for RV head lifts.

Failure to update the Final Safety Analysis Report pursuant to 10 CFR 50.71(e) to reflect aspects of handling the RV head was considered a potential violation.

The NRC has found industry uncertainty regarding the licensing bases for handling of RV heads, and as a result issued EGM 07-006, "Enforcement Discretion for Heavy Load Handling Activities," on September 28, 2007. By letter dated September 14, 2007, (ML072670127), the Nuclear Energy Institute (NEI) has informed the NRC of industry approval of a formal initiative that specifies actions each plant will take to ensure that heavy load lifts continue to be conducted safely and that plant licensing bases accurately reflect plant practices. The NRC staff believes implementation of the initiative will resolve uncertainty in the licensing bases for heavy load handling, and enforcement discretion related to the uncertain aspects of the licensing basis is appropriate during the implementation of the initiative.

The inspectors determined that the licensee met the following criteria to warrant enforcement discretion:

1. For RV head lifts occurring during and after April, 2007, the licensee implemented load handling procedures consistent with the existing load drop analysis.

2. Inspections of the following areas revealed no findings of significance:

   (a) Licensee implementation of safe load paths, load handling procedures, and standards for training of crane operators, use of special lifting devices, use of slings, and design, inspection, testing, and maintenance of the reactor building crane.

   (b) For spent fuel cask lifts over the spent fuel pool, a load drop analysis was provided that bounds the planned lifts with respect to load weight, load height, and medium present under the load. Procedures for handling the load reflected the applicable safety basis.

   (c) The movement of heavy loads was included as a configuration management activity in administrative controls established to implement 10 CFR50.65(a)(4).

Therefore, consistent with the intent of EGM 07-006, the NRC is exercising enforcement discretion (EA-08-037) for the above violation in accordance with Section VII.B.6 of the NRC Enforcement Policy without any enforcement action.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors witnessed surveillance tests and/or reviewed test data of the five risk-significant SSCs listed below, to assess, as appropriate, whether the SSCs met TS, the 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 to this report.

- PT/1/A/0600/012, Unit 1 Turbine Driven Emergency Feedwater Pump Test (IST)
- PT/0/A/0251/010, Auxiliary Service Water Pump Test (IST)
- PT/0/A/0711/001, Zero Power Physics Test (Unit 3)
- PT/3/A/0251/024, Unit 3 HPI Full Flow Test (IST)
- PT/3/A/0151/019, Penetration 19 Leak Rate Test (CIV)

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed documents and observed portions of the installation of two selected temporary modifications. Among the documents reviewed were system design bases, the UFSAR, TS, system operability/availability evaluations, and the 10 CFR 50.59 screening. As appropriate, the inspectors determined if: the installation was consistent with the modification documents; it was in accordance with the configuration control process; adequate procedures and changes were made; and post installation testing was adequate. The following items were reviewed under this inspection procedure:

- OD 500822, Installation and Removal of CCW Discharge RTDs
- OD 101602, Install Jumpers in Unit 1 Main Transformer Control Cabinet to Bypass Switch 43C (Cooler Selector Switch)

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors verified the Mitigating Systems Performance Indicators (MSPI) listed in the table below (for all three units), to determine its accuracy and completeness against requirements in NEI 99-02, Regulatory Assessment Performance Indicator Guideline.

Cornerstone: Mitigating Systems		
Performance Indicator	Verification Period	Records Reviewed
MSPI - high pressure injection - emergency feedwater - emergency AC power - residual heat removal - support cooling water	4th quarter, 2006; 1st, 2nd, and 3rd quarter, 2007	• Operating Logs, Train Unavailability Data • Maintenance Records • Maintenance Rule Data • Corrective Action Program • Consolidated Data Entry Derivation Reports • System Health Reports

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

.1 Daily Screening of Corrective Action Reports

As required by Inspection Procedure (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 screening was accomplished by reviewing copies of PIPs, attending daily screening meetings, and accessing the licensee's computerized database.

.2 Semi-Annual Trend Review

a. Inspection Scope

As required by IP 71152, "Identification and Resolution of Problems," the inspectors performed a review of the licensee's Corrective Action Program (CAP) and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screenings discussed in Section

4OA2.1 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the six month period of July 2007 through December 2007, although some examples expanded beyond those dates when the scope of the trend warranted. The review also included issues documented outside the normal CAP in major equipment problem lists, plant health team vulnerability lists, focus area reports, system health reports, self-assessment reports, maintenance rule reports, and Safety Review Group Monthly Reports. The inspectors compared and contrasted their results with the results contained in the licensee's latest quarterly trend reports. Corrective actions associated with a sample of the issues identified in the licensee's trend report were reviewed for adequacy.

b. Assessment and Observations

No findings of significance were identified. In general, the licensee has identified trends and has appropriately addressed the trends with their CAP.

.3 Focused Review

a. Inspection Scope

The inspectors performed an in-depth review of one issue entered into the licensee's CAP, and also performed an in-depth review of existing plant operator workarounds. The samples were within the Mitigating Systems Cornerstone and involved risk significant systems. The inspectors reviewed the actions taken to determine if the licensee had adequately addressed the following attributes:

- Complete, accurate and timely identification of the problem
- Evaluation and disposition of operability and reportability issues
- Consideration of previous failures, extent of condition, generic or common cause implications
- Prioritization and resolution of the issue commensurate with safety significance
- Identification of the root cause and contributing causes of the problem
- Identification and implementation of corrective actions commensurate with the safety significance of the issue.

The following issues and corrective actions were reviewed:

- Operator Workarounds
- PIP 07-3982, SSF Auxiliary Service Water (ASW) Suction Pipe Air Ejector Performance Has Degraded

b. Findings

No findings of significance were identified.

4OA3 Event Followup

(Closed) Licensee Event Report (LER) 05000269/2007002-00, Cask Shipments Include Startup Neutron Sources Not Listed in Certificate of Compliance (COC). This issue concerned a shipment of spent fuel from Oconee to McGuire in 1987 which included two startup neutron sources. Shipping fuel assemblies with a startup source violated shipping cask COC Number 9015, Revision 13. The issue was identified by the licensee and adequately addressed in the corrective action program under PIPs M-07-5072, O-06-4569, and G-95-0896. This failure to comply with the COC constitutes a violation of minor significance that is not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. This LER is closed.

4OA6 Management Meetings (Including Exit Meeting)

.1 Exit Meeting Summary

The inspectors presented the inspection results to Mr. M. Glover, Oconee Station Manager, and other members of licensee management at the conclusion of the inspection on January 9, 2008. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

.2 Regulatory Performance Meeting

A public Regulatory Performance Meeting was held on December 5, 2007, at the Oconee World of Energy Visitor Center. The purpose of this meeting was to discuss the performance deficiencies, lessons learned, and the proposed corrective actions associated with the two White findings and the White performance indicator in the Mitigating Systems Cornerstone that resulted in the performance of all three Oconee Units being in the Degraded Cornerstone Column of the NRC's Action Matrix from the fourth quarter 2006 to the third quarter 2007. The required supplemental inspection of these three White issues was completed on August 31, 2007, and the results were reported in NRC Supplemental Inspection Report 05000269,270,287/2007009, dated October 12, 2007. Meeting attendees are listed in the Attachment below.

4OA7 Licensee Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a NCVs.

- 10 CFR Part 50.65 (a)(4), requires, in part, that prior to performing maintenance activities, the licensee assess the potential risk increase resulting from the proposed maintenance activities. Contrary to the above, on October 21, 2007, the licensee failed to adequately assess the risk associated with activities to pressurize the Unit 3 Reactor Building (RB) while the 3A LPI cooler was OOS for maintenance. On October 22, 2007, the licensee identified and corrected the inadequate risk assessment, which changed the unit's risk profile from Yellow to Orange. The licensee halted activities to pressurize the U3 RB, which returned the unit's risk profile to Yellow. In accordance with Inspection Manual Chapter (IMC) 0612 Appendix B, "Issue Screening" and Appendix E, "Examples of Minor Issues", Section 7. Maintenance Rule Issues, Example e., the issue was determined to be more than minor. This finding is of very low safety significance because the incremental core damage probability was determined to be zero, and the incremental large early release probability was determined to be less than 1.2 E-9. This finding was documented in the licensee's corrective action program as PIP O-07-5829.

- 10 CFR 50.55a(g)(4) requires, in part, that components classified as ASME Code Class III must meet the requirements set forth in Section XI of the ASME Code. The 1998 Edition of Section XI, Article IWA-5244, "Buried Components", requires that in non-redundant systems where the buried components are isolable by means of valves, the visual examination for leakage (VT-2) shall consist of a leakage test that determines the rate of pressure loss. Alternatively, the test may determine the change in flow between the ends of the buried components. Contrary to the above, the licensee had not met these requirements during their third ISI interval which ended in 2005. The licensee recently identified this issue in their corrective action program as PIP O-07-06007. The licensee generated corrective actions to identify all code class buried piping and update the ISI program in order to support testing of the affected piping. This finding is of very low safety significance because it was not a design or qualification deficiency resulting in a loss of operability, did not represent an actual loss of a safety function, did not result in exceeding a TS allowed outage time, and did not affect external event mitigation.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee
E. Anderson, Superintendent of Operations
*S. Batson, Engineering Manager
*D. Baxter, Site Vice President
R. Brown, Emergency Preparedness Manager
*E. Burchfield, Reactor and Electrical Systems Manager
*S. Capps, Mechanical and Civil Engineering Manager
N. Constance, Operations Training Manager
C. Curry, Mechanical/Civil Engineering Manager
P. Culbertson, Maintenance Manager
G. Davenport, Compliance Manager
R. Freudenberger, Safety Assurance Manager
M. Glover, Station Manager
*C. Gray, Regulatory Compliance
D. Hubbard, Training Manager
T. King, Security Manager
*B. Meixell, Regulatory Compliance
*J. Smith, Regulatory Affairs
J. Steeley, Training Supervisor
*S. Severance, Regulatory Compliance
J. Twiggs, Radiation Protection Manager
*J. Weast, Regulatory Compliance

NRC
*J. Moorman, III, Chief, Reactor Projects Branch 1, RII
*L. Olshan, Project Manager, NRR
*C. Casto, Acting Deputy Regional Administrator, RII
*D. Rich, Senior Resident Inspector
*K. Clark, Senior Public Affairs Officer

Other
*G. Brouette, HSBCT, Site ANII
*T. Clements, Nuclear Watch South
*P. Wilkie, SCDHEC
*R. Chandler, Anderson Independent
*A. Simon, Greenville News
*D. Mangrum, WGOG/WSNW

*Note: asterisk (*) reflects attendance at Regulatory Performance Meeting on December 5, 2007

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened and Closed

05000287/2007005-01	NCV	Inadequate Loss of Unit 3 SFP Cooling Procedure (Section 1R20b.(1))
05000287/2007005-02	NCV	Failure to Establish Adequate Procedures for Containment Closure Following a Loss of Decay Heat Removal Event (Section 1R20b.(2))

Closed

05000269/2007002-00	LER	Cask Shipments Include Startup Neutron Sources Not Listed in Certificate of Compliance (Section 4OA3)

Items Discussed

None

DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

OP/1,2,3/A/1102/020 A, Primary Rounds
OP/1,2,3/A/1102/020 C, Turbine Building Third and Fifth Floor Rounds
OP/2/A/1102/020 D, SSF and Outside Rounds
CSM, 4.14, Chemistry Area Rounds and Equipment Status
RP/0/B/1000/035, Severe Weather Preparations
IP/0/B/1606/009, Preventive Maintenance and Operational Check of Freeze Protection
Nuclear System Directive (NSD-317), Freeze Protection Program
Electrical Heat Trace Health Reports for 2006 and 2007

Section 1R04: Equipment Alignment

OSS-0254.00-00-1000, Design Basis Specification for the Emergency Feedwater and the Auxiliary Service Water Systems
OSS-0254.00-00-2005, Design Basis Specification for Keowee Emergency Power
UFSAR Section 8.3.1.1.1, Keowee Hydro Station
UFSAR Section 7.4.3, Emergency Feedwater Controls
UFSAR Section 10.4.7, Emergency Feedwater
Drawing OFD-121D-1.1, Flow Diagram of Emergency Feedwater System – Unit 1

Drawing OFD-121D-2.1, Flow Diagram of Emergency Feedwater System – Unit 2
Drawing OFD-121D-3.1, Flow Diagram of Emergency Feedwater System – Unit 3
Drawing OFD-121A-3.8, Flow Diagram of Condensate System (Condensate Makeup and Emergency Feedwater Pump Suction) – Unit 3
Drawing OFD-121A-3.7, Flow Diagram of Condensate System (Upper Surge Tanks 3A and 3B, Upper Surge Tank Dome and Condensate Storage Tank)– Unit 3
OP/3/A/1106/006, Emergency Feedwater
OP/3/A/0600/018, Emergency Feedwater Train Operability
EP/3/A/1800/001 Rule 3, Loss of Main or Emergency Feedwater
Emergency Feedwater System Health Reports for 2006 and 2007
Technical Specification (TS) 3.3.14, 3.7.5, and 3.7.6
Selected Licensee Commitment (SLC) 16.7.3 16.10.3, 16.10.6, and 16.10.7

Section 1R05: Fire Protection

UFSAR Section 9.5.1, Fire Protection System
Design Basis Specification OSS-0254.00-00-4008, Fire Protection

Section 1R08: Inservice Inspection Activities

Procedures

NDE-600, Ultrasonic Examination of Similar Metal Welds in Ferritic and Austenitic Piping, Revision 17
QAP 9.21, Liquid Penetrant Inspection Procedure Solvent Removable Visible Dye, Rev. 1
NDE-35, Liquid Penetrant Examination, Revision 21
NDE-25, Magnetic Particle Examination, Rev. 23
NDE-640, Ultrasonic Examination Using Longitudinal Wave and Shear Wave, Straight Beam Techniques, Rev. 4
PDI-UT-2, "PDI generic Procedure for the Ultrasonic Examination of Austenitic Pipe Welds, " Rev. C
OP/0/A/1102/028, "Reactor Building Tour," Revision 24
MP/0/A/1800/132, "Evaluation of Boric Acid Leakage on Mechanical, Structural, and Electrical Components," Revision 1
GTSM0808-1, "Welding Procedure Specification," Revision 7
Areva Procedure 54-ISI-400-14, "Multi-Frequency Eddy Current Examination of Tubing

Corrective Actions (PIPs)

O-07-06007-3, Discrepancy between OFD-124A-3.1 and OFD-133A-3.1 for embedded piping between CCW and LPSW pump suctions.
O-06-03525, Unit 3 reactor building tour results. Engineering startup mode 3 walkdown
O-07-05928, U3EOC23 mode 3 shutdown reactor building tour- performed by engineering maintenance team.
O-06-02417, documentation of engineer/maintenance U3EOC22 shutdown mode 3 reactor building tour.

Other

Areva Eddy Current Examination Plan for Oconee Unit 3 EOC23
Steam Generator Health Report
Areva FTP Site for Data Analysis Personnel Qualification and Certification
Oconee Unit 3 EOC 23 Steam Generator Condition Monitoring and Repair Limits
Data Acquisition and Analysis Personnel Qualification for Level II Data Operators, Level II A and Level III Analysts
Summary of ONS Steam Generator Tube Wear Inspection

Section 1R15: Operability Evaluations

OSS-0254.00-00-2005, Design Basis Specification for Keowee Emergency Power
OSS-0254.00-00-1028, Design Basis Specification for the Low Pressure Injection and Core Flood Systems
UFSAR Section 8.3.1.1.1, Keowee Hydro Station
UFSAR Section 6.3, Emergency Core Cooling system
TS 3.3.8, TS 3.5.3, and TS 3.8.1

Section 1R19: PMT

UFSAR Section 6.3.3.2, Low Pressure Injection and Core Flood Systems
UFSAR Section 10.4.7, Emergency Feedwater System
UFSAR Section 9.2.2.2.3, Low Pressure Service Water System
USFAR Section 6.3.2.2.1, High Pressure Injection System

Section 1R20: Refueling Activities

MP/0/B/1710/022, Operation of Reactor Building Polar Crane, Rev 24
MP/0/A/1710/017B, Crane-Whiting-Polar-Periodic & Quarterly Inspection
MP/0/A/1710/012, Lifting Equipment, General Safety Inspection
Duke Power Letter, June 26, 1981, Turbine Building, Control of Heavy Loads
Duke Power Letter, February 1, 1982, Turbine Building, Control of Heavy Loads
Duke Power Letter, October 1, 1981, Evaluation of Oconee Reactor Building, Control of Heavy Loads
Duke Power Letter, June 22, 1982, Evaluation of Oconee Heavy Load Handling Systems in the Reactor Building
Duke Power Letter, October 8, 1982, Control of Heavy Loads
Duke Power Letter, November 5, 1982, Control of Heavy Loads
Analysis of the Effect of Reactor Vessel Head Drop On the Reactor Vessel, BAW-171OP, March 1982, 77-1132379-00
Problem Investigation Report 4-087-0205, Investigation Report 087-39-4.
PIP O-07-02348, Compliance with NUREG 0612 Phase II requirements
PIP O-07-05598, Enforcement Guidance Memorandum 07-006
NRC NUREG 0612, Control of Heavy Loads at Nuclear Power Plants, January, 1980
NRC Generic Letter 80-113, December 22, 1980
NRC Generic Letter 81-07, Control of Heavy Loads, February 3, 1981

NRC Generic Letter 85-11, Completion of Phase II of “Control of Heavy Loads at Nuclear Power Plants”, NUREG -0612, June 28, 1985
NRC RIS 2005-25, Clarification of NRC Guidelines for Control of Heavy Loads, October 31,2005
NRC RIS 2005-25, Supplement 1, Clarification of NRC Guidelines for Control of Heavy Loads, May 29, 2007
EGM 07-006, Enforcement Discretion for Heavy Load Handling Activities, September 28, 2007
PIP O-07-6083, Some improvements could be made to eliminate potential delaying emergency containment closure
PIP O-07-6153, Containment closure capability drill critique
PIP O-06-3002, Unit 3 Loss of offsite power and decay heat removal
NSD 403, Shutdown Risk Management (Modes 4, 5, 6 and No-Mode) per 10CFR50.65 (a)(4), Appendix A, Basis for Equipment Hatch and Configuration
SD 1.3.5, Shutdown Protection Plan
AP/3/A/1700/026, Loss of Decay Heat Removal
AM/0/A/1400/002B (Equipment Hatch - Reactor Building - Emergency Closing)
NRC Generic Letter 88-17, Loss of Decay Heat Removal
SLC 16.5.3

Section 1R22: Surveillance Testing

Drawing OFD-121D-1.1, Flow Diagram of Emergency Feedwater System – Unit 1
Drawing OFD-121D-1.2, Flow Diagram of Emergency Feedwater System (Auxiliary Service Water)
UFSAR Section 10.4.7, Emergency Feedwater System
Oconee 3 Cycle 24, Core Operating Limits Report
TS 3.7.5 and SLC 16.9.9

Section 4OA2: Identification and Resolution of Problems

PIP O-07-2119, Operation of 1/2/3CCW-410 to control SSF ASW flow is difficult
PIP O-98-3400, Access to TDEFWP restricted by instrument trays and supports
PIP O-96-1596, Control problems with LPSW-51 on each unit
NSD 223, Trending Program, Appendix A Group Trend Reports:
Maintenance, 3rd Quarter 2007
Radiological Protection, 3rd Quarter 2007
Operations, 3rd Quarter 2007

LIST OF ACRONYMS

ADAMS	-	Agency wide Documents Access and Management System
AP	-	Abnormal Procedure
ASME	-	American Society of Mechanical Engineers
ASW	-	Auxiliary Service Water
BACC	-	Boric Acid Corrosion Control
CAP	-	Corrective Action Program

CCW	-	Condenser Circulating Water
CFR	-	Code of Federal Regulations
COC	-	Certificate of Compliance
DEC	-	Duke Energy Corporation
EFW	-	Emergency Feedwater
EOC	-	End-of-Cycle
EP	-	Emergency Procedure
ET	-	Eddy Current Testing
gpm	-	Gallons per Minute
HPI	-	High Pressure Injection
IP	-	Inspection Procedure
IR	-	Inspection Report
IST	-	Inservice Test
KHU	-	Keowee Hydroelectric Unit
kV	-	Kilo Volt
LCO	-	Limiting Condition for Operation
LDHR	-	Loss of Decay Heat Removal
LER	-	Licensee Event Report
LPI	-	Low Pressure Injection
LPSW	-	Low Pressure Service Water
LPT	-	Liquid Penetrant Testing
MSPI	-	Mitigating Systems Performance Indicator
NCV	-	Non-Cited Violation
NDE	-	Non-Destructive Examination
NEI	-	Nuclear Energy Institute
NRC	-	Nuclear Regulatory Commission
NRR	-	Nuclear Reactor Regulation
ONS	-	Oconee Nuclear Station
OOS	-	Out-of-Service
MT	-	Magnetic Particle Examination
PARS	-	Publicly Available Records
PI	-	Performance Indicator
PIP	-	Problem Investigation Process report
PM	-	Preventive Maintenance
PMT	-	Post-Maintenance Testing
PT	-	Performance Test
RB	-	Reactor Building
RCS	-	Reactor Coolant System
RCW	-	Recirculating Cooling Water
RII	-	Region II
RT	-	Radiograph Examination
RTP	-	Rated Thermal Power
RV	-	Reactor Vessel
SDP	-	Significance Determination Process
SFP	-	Spent Fuel Pool
SG	-	Steam Generator
SLC	-	Selected Licensee Commitments

SSC	-	Structure, System and Component
SSF	-	Standby Shutdown Facility
TB	-	Turbine Building
TDEFW	-	Turbine Driven Emergency Feedwater
TS	-	Technical Specification
UFSAR	-	Updated Final Safety Analysis Report
UT	-	Ultrasonic Examination
VT	-	Visual Examination