UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

Report Nos.: 50-269/92-10, 50-270/92-10 and 50-287/92-10

Licensee: Duke Power Company
P. O. Box 1007
Charlotte, NC 28201-1007

Docket Nos.: 50-269, 50-270, 50-287, 72-4

License Nos.: DPR-38, DPR-47, DPR-55, SNM-2503

Facility Name: Oconee Nuclear Station

Inspection Conducted: March 29 - April 25, 1992

Inspector: W. H. Miller Jr. 5-20-92
for P. E. Harmon, Senior Resident Inspector — Date Signed

W. H. Miller Jr. 5-20-92
for B. B. Desai, Resident Inspector — Date Signed

W. H. Miller Jr. 5-20-92
for W. K. Poertner, Resident Inspector — Date Signed

Approved by: G. A. Belisle 5/20/92
G. A. Belisle, Section Chief — Date Signed
Division of Reactor Projects

SUMMARY

Scope:

This routine, resident inspection was conducted in the areas of operations, surveillance testing, maintenance activities and follow-up on previous inspection findings.

Results:

Three violations identified during the Oconee Shutdown Risk and Outage Management Inspection are documented in this inspection report. The violations concern an incorrectly performed nuclear instrument reliability check, lack of independent safety tag verification, and failure to perform a safety

evaluation for a temporary modification (paragraph 2.e). Each of the instances involved failure to follow approved procedures on the part of station staff. The specifics surrounding these violations are described in NRC Inspection Report Nos. 50-270/91-202.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*H. Barron, Station Manager
*S. Benesole, Safety Review
D. Coyle, Systems Engineering
*J. Davis, Safety Assurance Manager
D. Deatherage, Operations Support Manager
B. Dolan, Manager, Mechanical/Nuclear Engineering (Design)
W. Foster, Superintendent, Mechanical Maintenance
*J. Hampton, Vice President, Oconee Site
*O. Kohler, Regulatory Compliance
C. Little, Superintendent, Instrument and Electrical (I&E)
*M. Patrick, Performance Engineer
B. Peele, Engineering Manager
*S. Perry, Regulatory Compliance
G. Rothenberger, Work Control Superintendent
*R. Sweigart, Operations Superintendent

Other licensee employees contacted included technicians, operators, mechanics, security force members, and staff engineers.

NRC Resident Inspectors:

*P. Harmon
*W. Poertner
*B. Desai

*Attended exit interview.

2. Plant Operations (71707)

a. General

The inspectors reviewed plant operations throughout the reporting period to verify conformance with regulatory requirements, Technical Specifications (TS), and administrative controls. Control room logs, shift turnover records, temporary modification log and equipment removal and restoration records were reviewed routinely. Discussions were conducted with plant operations, maintenance, chemistry, health physics, instrument & electrical (I&E), and performance personnel.

Activities within the control rooms were monitored on an almost daily basis. Inspections were conducted on day and on night shifts, during weekdays and on weekends. Some inspections were made during shift change in order to evaluate shift turnover performance. Actions observed were conducted as required by the licensee's Administrative Procedures. The complement of licensed personnel on each shift inspected met or exceeded the requirements of TS. Operators were responsive to plant annunciator alarms and were cognizant of plant conditions.

Plant tours were taken throughout the reporting period on a routine basis. The areas toured included the following:

Turbine Building
Auxiliary Building
CCW Intake Structure
Independent Spent Fuel Storage Facility
Units 1, 2 and 3 Electrical Equipment Rooms
Units 1, 2 and 3 Cable Spreading Rooms
Units 1, 2 and 3 Penetration Rooms
Units 1, 2 and 3 Spent Fuel Pool Rooms
Station Yard Zone within the Protected Area
Standby Shutdown Facility
Keowee Hydro Station

During the plant tours, ongoing activities, housekeeping, security, equipment status, and radiation control practices were observed.

Within the areas reviewed, licensee activities were satisfactory.

b. Plant Status

All three units operated at essentially full power the entire reporting period.

c. Potential Low Control Power Voltage

On April 7, 1992, the inspectors were informed by the licensee that the control power voltage to close the Unit 3 Standby Breakers could be lower than the manufacturer's minimum rated voltage of 90 VDC assuming worst case voltage conditions. The breakers were declared inoperable and a modification was initiated to correct the potential low control power voltage condition at the Standby Breakers. The modification consisted of installing an interposing relay in the control

power circuitry and rewiring the control power circuitry to reduce the voltage drop from the 125 VDC panelboard to the breaker cubicle.

Subsequently, the licensee determined that similar low voltage conditions might also occur on the Unit 1 and 2 Standby Breakers, Unit 1, 2 and 3 Startup Breakers and the Keowee Standby Breakers. The licensee determined that the Unit 3 Standby Breakers were the worst case and that voltage could be as low as 63.3 VDC assuming worst case conditions. The licensee held discussions with the manufacturer and determined that similar breakers had been tested and closed with control voltages as low as 60 VDC. The licensee tested all six Standby Breakers and both Keowee Standby Breakers to determine the voltage at the breaker close coil required to actually close the breaker. Seven of the eight breakers closed at a voltage of 58.5 VDC or less and the eighth breaker closed at a voltage of 63.5 VDC. The Unit 1 Standby Breaker had the highest required closing voltage (63.5) and the licensee calculated that the worst case available voltage at the breaker would be 78.5 VDC.

Based on the test data obtained, the licensee determined that the Unit 1, 2 and 3 Startup Breakers and the Keowee Standby Breakers were still capable of closing under worst case voltage conditions. The licensee decided to modify all three units' Standby Breakers within the 72 hour limiting condition for operation, and then modify the Startup Breakers and the Keowee Standby Breakers one at a time. This modification would return the voltage at the breaker closing coils back to the manufacturer's minimum voltage requirement.

A conference call was conducted between the licensee, Region II, and the Office of Nuclear Reactor Regulation (NRR) to discuss the licensee's findings and planned corrective actions. The inspectors reviewed the licensee's proposed modification, witnessed the testing conducted on the Standby Breakers and Keowee Standby Breakers, observed the installation of the modification package on the Standby Breakers, and followed the work activities on the Startup and Keowee Standby Breakers. The modification packages were completed on the Units' 1, 2 and 3 Standby Breakers on April 10, 1992. The modification packages were completed on the Startup and Keowee Standby Beakers on April 15, 1992. The inspectors will review this item further during review of the licensee's LER that is required to be issued within 30 days of the event.

d. Turbine Driven Emergency Feedwater (TDEFW) Pump Testing

In NRC Inspection Report Nos. 50-269, 270, 287/92-09, the inspectors questioned the acceptability of the licensee's use of the Auxiliary Steam (AS) header as a source of motive power for the TDEFW pump turbine. The licensee performed an operability determination which concluded that the (AS) header was acceptable as the source for the turbine even though the AS system is not seismically qualified. The conclusion is based on a Safety Evaluation Report (SER), Seismic Qualification Of The Auxiliary (Emergency) Feedwater System, issued January 14, 1987. The SER determined that the turbine-driven pump could fail during a seismic event, but the redundant, motor-driven pumps would remain intact to provide full capacity for all safety functions. Therefore, the potential seismic failure of the turbine-driven train or subsystem is acceptable on the basis of sufficient unaffected redundancy.

Based on discussions with the licensee and NRR, the inspector's questions in this area were resolved satisfactorily.

e. Shutdown Risk and Outage Management Inspection

The shutdown risk inspection and outage management inspection was conducted from December 2, 1991, through February 21, 1992, and is documented in NRC Inspection Report No. 50-270/91-202 issued on April 6, 1992. The inspection identified the following deficiencies: (1) incorrectly performed nuclear instrument reliability check during fuel movement, (2) lack of independent safety tag verification and (3) lack of a 10 CFR 50.59 safety evaluation for a temporary modification. These items were reviewed by the inspectors and are identified as Violations 270/92-10-01: Incorrectly Performed Nuclear Instrument Reliability Check,; 270/92-10-02: Lack of Independent Safety Tag Verification, and 270/92-10-03: Failure to Perform a Safety Evaluation For a Temporary Modification. The specifics involving these violations are contained in NRC Inspection Report No. 270/91-202.

Three violations were identified.

3. Surveillance Testing (61726)

A Surveillance test was reviewed by the inspectors to verify procedural and performance adequacy. The completed test reviewed was examined for

necessary test prerequisites, instructions, acceptance criteria, technical content, authorization to begin work, data collection, independent verification where required, handling of deficiencies noted, and review of completed work. The test witnessed was inspected to determine that an approved procedure was available, test equipment was calibrated, prerequisites were met, the test was conducted according to procedure, test results were acceptable and system restoration was completed.

The following surveillance was reviewed and witnessed.

PT/0/A/0610/05A Solid State Relay Breaker Trip Test.

Within the areas reviewed, licensee activities were satisfactory.

No violations or deviations were identified.

4. Maintenance Activities (62703)

Maintenance activities were observed and/or reviewed during the reporting period to verify that work was performed by qualified personnel and that approved procedures in use adequately described work that was not within the skill of the trade. Activities, procedures, and work requests were examined to verify; proper authorization to begin work, provisions for fire, cleanliness, and exposure control, proper return of equipment to service, and that limiting conditions for operation were met.

Maintenance reviewed and witnessed in whole or in part:

TN/3/A/OE4601/00 Modify Close Circuit For Unit 3 Standby Breakers
TN/5/A/OE4604/00 Modify Close Circuit For Keowee Standby Breaker

Within the areas reviewed, licensee activities were satisfactory.

No violations or deviations were identified.

5. Inspection of Open Items (92700)(92701)(92702)

The following open items were reviewed using licensee reports, inspection, record review, and discussions with licensee personnel, as appropriate:

a. (Open) Inspector Followup Item 269,270,287/92-09-01: CBAST Concerns. The licensee had not completed the technical justification

to support their interpretation of the Technical Specification requirement during this inspection period. The inspectors were told that the justification would be provided during the next inspection period. This item will remain open pending review of the licensee's technical justification.

b. (Closed) Violation 50-269,270,287/90-17-01: Penetration Room Ventilation System (PRVS) Inoperable Under Certain Conditions Due to Design Deficiencies. The licenesee's responses dated July 27 and September 13, 1990, were reviewed and found to be acceptable. The inspectors reviewed the licensee's corrective actions including the revised program to test failure positions of valves as required by Generic Letter (GL) 88-14, and revisions to the Oconee Final Safety Analysis Report pertaining to the permanent resolution for valves PR-13, PR-17, PR-20. The corrective actions were acceptable.

c. (Closed) Violation 50-269,270,287/90-17-06: Responses to GL-88-14 Were Not Complete and Accurate. Verification was not performed for all active air operated components. The licensee's responses to this item were dated July 17, September 13, September 20, 1990, and the revised response to GL-88-14 was dated August 12, 1991. The inspector reviewed the licensee's corrective actions associated with the revised responses to GL-88-14 and found them to be acceptable.

d. (Closed) Licensee Event Report (LER) 269/90-10: Potential Failure of Engineered Safeguards System By Improper Valve Failure Mode Due to Design Deficiency, Deficient Documentation. This LER associated with PRVS was issued on July 13, 1990. The PRVS issue was discussed in NRC Inspection Report Nos. 50-269,270,287/90-17. The inspector reviewed the licensee's corrective actions including the completed modification to the PRV system on all three units.

e. (Closed) Licensee Event Report 269/91-01: Potential Single Failure During a LOCA/LOOP Event May Result in the Loss of Emergency Power Due to Design Deficiency. This LER was issued on February 7, 1991. The inspectors reviewed the temporary as well as permanent corrective actions associated with the design deficiency.

f. (Closed) Licensee Event Report 50-287/90-02: Reactor Trip Caused by Equipment Failure, Valve Limit Switch Linkage Became Disconnected. This LER was issued on April 5, 1990. The inspectors reviewed the completed corrective actions associated with this event. In addition, planned corrective action to perform signature analysis

and other testing to assure 3FDW-31 will stroke, is under evaluation by a Problem Investigation Report.

No violations or deviations were identified.

6. Exit Interview (30703)

The inspection scope and findings were summarized on April 29, 1992, with those persons indicated in paragraph 1 above. The inspectors described the areas inspected and discussed in detail the inspection findings. The licensee did not identify as proprietary any of the material provided to or reviewed by the inspectors during this inspection.

Item Number	Status	Description/Reference Paragraph
270/92-10-01	Open	Violation - Incorrectly Performed Nuclear Instrument Reliability Check (paragraph 2.e).
270/92-10-02	Open	Violation - Lack of Independent Safety Tag Verification (paragraph 2.e).
270/92-10-03	Open	Violation - Failure to Perform a Safety Evaluation for a Temporary Modification (paragraph 2.e).