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

Report Nos.: 50-269/84-29, 50-270/84-28, and 50-287/84-31

Licensee: Duke Power Company
422 South Church Street
Charlotte, NC 28242

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

Facility Name: Oconee 1, 2, and 3

Inspection Conducted: October 11 - November 17, 1984

Inspectors: C. W. Burger for 12/11/84
J. Bryant, Senior Resident Inspector Date Signed

C. W. Burger for 12/11/84
K. Sasser, Resident Inspector Date Signed

Accompanying Personnel: L. King

Approved by: Hugh C. Dance 12/12/84
Hugh C. Dance, Section Chief Date Signed
Division of Reactor Projects

SUMMARY

Scope: This routine, unannounced inspection entailed 225 resident inspector-hours onsite in the areas of operations, surveillance, maintenance, and refueling.

Results: Of the four areas inspected, no items of noncompliance or deviations were identified.

REPORT DETAILS

1. Licensee Employees Contacted

*M. S. Tuckman, Station Manager
J. N. Pope, Superintendent of Operations
T. Barr, Superintendent of Technical Services
J. Davis, Superintendent of Maintenance
*R. Bond, Compliance Engineer
T. Matthews, Compliance Engineer

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

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on November 20, 1984, with those persons indicated in paragraph 1 above.

3. Licensee Action on Previous Enforcement Matters

This subject was not addressed in the inspection.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Plant Operations

The inspectors reviewed plant operations throughout the reporting period to verify conformance with regulatory requirements, technical specifications, and administrative controls. Control room logs, shift turnover records and equipment removal and restoration records were reviewed routinely. Interviews were conducted with plant operations, maintenance, chemistry, health physics 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 Section 3.18 of the station directives. The complement of licensed personnel on each shift inspected met or exceeded the requirements of technical specifications. Operators were responsive to plant annunciator alarms and appeared to be 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
Units 1, 2, and 3 Electrical Equipment Rooms
Units 1, 2, and 3 Cable Spreading Rooms
Station Yard Zone within the Protected Area
Unit 1 Reactor Building

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

Unit 1 began the report period shutdown for cycle 9 refueling, and continued in that mode throughout the reporting period. It is scheduled to startup on November 26, 1984.

Unit 2 reduced power to 23% from October 17 through October 19 in order to repair a secondary side pinhole leak in an expansion joint. Otherwise, the unit remained at full power throughout the report period. At the end of the report period, November 17, Unit 2 has completed 343 days of continuous online operation.

Unit 3 operated at essentially full power until November 6 when it was shutdown to repair a steam generator tube leak of approximately 2 gpm. This shutdown is discussed in more detail in another section of this report Startup is anticipated on November 18 or 19.

6. Surveillance Testing

The surveillance tests listed below were reviewed and/or witnessed by the inspectors to verify procedural and performance adequacy.

The completed tests reviewed were 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 tests witnessed, in whole or in part, were inspected to determine that approved procedures were available, test equipment was calibrated, prerequisites were met, tests were conducted according to procedure, tests were acceptable and system restoration was completed.

Completed surveillances reviewed, but not witnessed, were as follows:

WR55422A - Control battery daily test on 3CA and 3CB batteries
WR55313A - Source range and intermediate range channel test
WR55011A - RPS channel B online test
WR56835 - Keowee fire protection equipment inspection and check
WR57796C - Inspection of reactor building fire extinguishers and hose stations

WR55968A - Test on SSF 125 V DC (normal and standby) batteries DCSF and DSCFS
WR55872A - Functional test of MDEFWP initiation pressure switches
WR55059A - E/S system, logic subsystem 2, reactor building spray, channel 8, online instrument calibration

Surveillances witnessed in whole or in part were as follows:

PT/1/A/0150/36 Leak Rate Test of Penetration No. 22

PT/1/A/0150/22D Valve Functional Test (1LP-20)

PT/1/A/0150/12A ES System Logic HPI and RB Channel 1 On-Line Test, Unit 3

IP/0/A/310/13A ES System Logic HPI and RB Channel 2 On-Line Test, Unit 3

PT/1/A/400/10 RC Makeup Check Valve Test

7. Maintenance Activities

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 services, and that limiting conditions for operation were met.

Work requests reviewed but not witnessed included the following:

WR 16063B - 3HP-7 Packing Leak - Investigate and Repair
WR 15587B - 2CA Battery Charger Will Not Carry Load - Investigate and Repair
WR 15916B - Repair Air Leak on 2FDW-315 Actuator
WR 51740C - Replace Valve 2HPSW-239 on Hose Station 5-D-39
WR 16135R - Change Out Emergency LPSW Supply to HPI Cuno Filter
WR 53540C - Upgrade ICA Battery Cell 7
WR 54809B - Replace Worn Test Tee on 2PS-400 RPS Channel A FWP Control Air Pressure Switch
WR 16036B - LDST Levels 1 and 2 Do Not Agree Within 2 Inches as Required - Investigate and Repair

Work requests witnessed:

WR 96660 - Seal of Cable Entrance on Class IE Devices (NSM 2304)

In addition, various maintenance jobs in progress during the Unit 1 shutdown were witnessed in part.

No violations or deviations were identified.

8. Unit 1 Refueling Outage

Unit 1 remained shutdown for the refueling outage throughout the report period. Maintenance and repair work scheduled included disassembly and rework of the high pressure turbine, hot leg ISI, UT of core barrel hold down bolts, HPI letdown cooler replacement, control room HVAC modifications, and eddy current testing of steam generator tubes.

Numbers of steam generator tubes inspected and plugged, as given below, are approximate at this time. On 1A steam generator, of the 2800 tubes examined by eddy current, three were found below minimum allowable thickness and were plugged. On 1B steam generator, of the 8000 tubes inspected, 53 were plugged.

During the outage, the core was defueled, components were shuffled in the spent fuel pool, and refueling was completed on November 2. At the end of the reporting period the outage was several days behind schedule, due primarily, to the large number of instrumentation procedures to be completed. Another potential delay exists on a reactor building cooling unit which is pulling higher than normal current.

During the outage, the residents inspected various surveillances, operating procedures, and maintenance jobs including installation of the reactor vessel canal seal plate. The operations procedures listed below were reviewed and some were witnessed in part by the inspectors.

OP/1/A/1102/15	Enclosure 3.1, Filling Transfer Canal
OP/0/A/1106/19	Keowee Shutdown
OP/3/A/1102/01	Controlling Procedure for Unit Startup
OP/3/A/1103/15	Shutdown Margin Calculation
OP/0/A/1103/05	Formation of Pressurizer Steam Bubble

9. Unit 3 Steam Generator Tube Leak

A small tube leak of approximately 0.02 gpm has been evident in 3A once through steam generator (OTSG) for several months and has been mentioned in previous reports. On November 6 at 1:30 a.m., the calculated leak rate was 0.024 gpm. At 4:20 a.m., gas activity began a rapid increase and the calculated leak rate rose to 0.8 gpm. Reactor shutdown began at 4:52 a.m. At 6:00 a.m., the leak rate had increased to 1.5 gpm and an Unusual Event was declared at 6:10 a.m.

The shutdown proceeded without event, and at 9:15 a.m., 3A OTSG was isolated. The highest calculated leak rate was approximately 2 gpm. There was no release of radioactivity and the Unusual Event was terminated at 11:25 a.m., on November 6.

The leaking tube was identified and plugged. One adjacent tube and another in the vicinity were also plugged when eddy current tests revealed them to be degraded. A leak check after the initial plugging revealed a small leak in another section of the tube bundle. The leaks and another tube were then plugged.

It is believed that the small leak discovered after the initial plugging was probably the tube that had been leaking for several months. The leak which caused the shutdown probably was a new event.

Unit 3 was being prepared for startup at the end of the report period, November 17.

No violations or deviations were identified.

10. Equipment Operability Determination (RON 2207)

Oconee Technical Specification 1.3 defines operability of a system as its ability to perform its intended safety function. It states further that implicit in the definition is the assumption that all auxiliary equipment required in order to assure performance of the safety function is capable of performing its related support function. Auxiliary equipment is defined as including, but not limited to, normal or emergency power sources, cooling and seal water, instrumentation and controls, etc. Major systems required to be operable are described in Technical Specifications Chapter 3, "Limiting Conditions for Operation." Methods of testing to verify performance of systems and functional tests of components are described in Chapter 4, "Surveillance Requirements."

The ONS Administrative Policy manual (APM), Section 3.2.2, Periodic Testing, states that the testing program will include all surveillances required by ONS Technical Specifications and FSAR. It assigns broad responsibility, directs scheduling, defines requirements of test procedures including acceptance criteria and independent verification for removal and return to service.

ONS Station Directive 3.2.2, Station Surveillance Program, implements APM 3.2.2 by listing ONS surveillances. It lists the equipment affected, responsible organization, type of test, frequency, test procedures number, and Technical Specification, FSAR or 10 CFR reference.

The surveillances are computerized, with printouts listing when required and when last completed. The resident inspectors receive monthly schedules of surveillances to be performed by the different groups.

The inspectors selected three systems listed in the Technical Specifications as necessary to meet limiting conditions for operation. Surveillance procedures listed for these systems were reviewed to determine whether performance of the procedures would provide reasonable assurance of system operability. The systems selected were:

Keowee Hydro Station (Emergency Power)
Turbine Driven Emergency Feedwater Pump
Low Pressure Service Water

a. Keowee Hydro Station - Oconee Emergency Power

Procedures reviewed:

PT/620/9 - Keowee Hydro Test - Monthly
MP/2000/53 - Keowee Underground Breaker Logic Test - Monthly
PT/230/11 - Keowee Hydro Tailrace Minimum Flow Test - Annually
PT/610/1J - EPSL ES Actuation - Keowee Emergency Start - Annually
PT/610/17 - Operability of 4160 V Breakers - Monthly

There are other performance tests which verify condition of Keowee auxiliary equipment such as batteries and fire protection equipment. The tests listed above verify monthly that each Keowee unit can be started remotely from the Oconee 1 and 2 control room and that switching logic and breakers perform correctly.

Annually it is demonstrated that each Keowee unit can be started using control room emergency start circuits and can pick up, within 25 seconds, a simulated requirement for engineered safety features. Each hydro unit is loaded to at least the combined load of the auxiliaries actuated by an ES signal in one unit and the auxiliaries of the other two units in hot shutdown by synchronizing the hydro unit to the offsite power system and assuming the load at the maximum practical rate.

b. Turbine Driven Emergency Feedwater Pump (TDEFWP)

Procedures reviewed:

PT/600/11 Emergency Feedwater Flow Indicator - Monthly
PT/600/12 TDEFWP Performance Test - Monthly
PT/150/22 EFW Operational Valve Functional Test - Quarterly
PT/600/18 EFDW Train Operability Test - Refueling
IP/305/12 TDEFWP Initiation Circuit Calibration - Refueling
IP/275/6A,6B EFW Flow Indication Calibration - Refueling
IP/275/41,54 EFWP Auto Start and Valve Actuation - Refueling
IP/275/05W EFW Steam Generator Fuel Control Calibration/Test - Refueling

During performance tests, feedwater is recirculated for at least one hour to the upper surge tank. Operation of all functional components is observed visually and is monitored on control room panels.

c. Low Pressure Service Water (LPSW)

Procedures reviewed:

PT/150/22A or B	LPSW Valves Test - Quarterly
PT/251/1	LPSW Pump Performance Test - Quarterly
IP/360/10	LPSW Minimum Flow Calibration - Annually
PT/160/3	Reactor Building Isolation and Cooling System - Refueling

Units 1 and 2 share three 15,000 gpm LPSW pumps and Unit 3 has two 15,000 gpm pumps. One pump per unit is in operation at all times during reactor operation. Pump operation is rotated monthly to verify that pumps are operable. In addition to the LPSW tests listed above, on each refueling shutdown, testing of the reactor building cooling system includes performance testing of the engineered safety features of the LPSW system.

d. Conclusion

All three systems reviewed are tested for operability by a complete system test at least on every refueling outage. In additon, pumps, valves, and other components are tested on a more frequent basis. In all cases, there appears to be adequate assurance that the systems are operable.

No violations or deviations were identified.