



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

Report Nos: 50-269/85-38, 50-270/85-38, and 50-287/85-38

Licensee: Duke Power Company
422 South Church Street
Charlotte, N.C. 28242

Facility Name: Oconee Nuclear Station

Docket Nos.: 50-269, 50-270, and 50-287

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

Inspection Conducted: November 12 - December 9, 1985

Inspectors:	<u>HC Dance</u>	<u>12/13/85</u>
	J. C. Bryant	Date Signed
	<u>HC Dance</u>	<u>12/13/85</u>
	M. K. Sasser	Date Signed
	<u>HC Dance</u>	<u>12/13/85</u>
	L. P. King	Date Signed
Approved by:	<u>HC Dance</u>	<u>12/13/85</u>
	H. C. Dance, Section Chief	Date Signed
	Division of Reactor Projects	

SUMMARY

Scope: This routine, announced inspection entailed 146 inspector-hours on site in the areas of operations, surveillance, maintenance, startup testing of the safe shutdown facility, and LER review.

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

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REPORT DETAIL

1. Licensee Employees Contacted

- *M.S. Tuckman, Station Manager
- *J.N. Pope, Superintendent of Operations
- T.S. Barr, Superintendent of Technical Services
- T.E. Owen, Superintendent of Maintenance
- R.T. Bond, Compliance Engineer
- *T.C. Matthews, Technical Specialist
- H.R. Lowery, Shift Operating Engineer

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

Resident Inspectors:

- *J.C. Bryant
- *M.K. Sasser
- *L.P. King

*Attended exit interview.

2. Exit Interview

The inspection scope and findings were summarized on December 10, 1985 with those persons indicated in paragraph 1 above. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection.

3. Licensee Action on Previous Enforcement Matters

(Closed) Violation/85-10-01: Control Rod Position Limits. The inspectors verified that all corrective actions specified have been satisfactorily completed. This item is closed.

4. Unresolved Items

Unresolved items were not identified on this inspection.

5. Plant Operations

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 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 week days and on weekends. Some inspections were made during shift change in order to evaluate shift turnover performance. Actions observed were conducted as required by Operations Management Procedure 2-1. 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
- Units 1, 2, and 3 Penetration Rooms
- Units 1, 2, and 3 Electrical Equipment Rooms
- Units 1, 2, and 3 Cable Spreading Rooms
- Station Yard Zone within the Protected Area
- Standby Shutdown Facility
- Keowee Hydro Plant

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

Unit 1 and 2 remained at essentially 100% power throughout the reporting period, November 12 to December 9, 1985.

Unit 3 began the report period shutdown for replacement of a main turbine bearing. As the unit was being shut down a steam generator tube leak developed. The leaking tube, and another which demonstrated reduced wall thickness in "A" steam generator, were plugged. The turbine bearing was replaced and the unit made critical at 4:47 p.m. on November 16. It reached 100% power at 11:14 a.m. on November 17.

Unit 3 operated at 100% power until 8:43 p.m. on November 24 when it was shut down for failure of main turbine bearing No. 1, the same bearing position which had failed previously. During extensive examination, the Licensee found no specific cause for the bearing failure. No condition was found that was not within tolerance. In order to eliminate possible contributing factors, two oil lift pumps were replaced, the journal was machined, all bearings inspected, and efforts made to provide perfect alignment of the shaft. At the end of the report period, work was nearing completion and it is anticipated that Unit 3 will be on line by December 13.

No violations or deviations were identified.

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, test results were acceptable and systems restoration was completed.

Surveillances witnessed in whole or in part are as follows:

PT/O/A/0150/008	Reactor Building Personnel Lock Leak Rate Test, Unit 2
PT/O/A/0610/02	External Grid Trouble Protection System Logic and Switchyard Isolation Logic Test

Surveillance tests reviewed were:

WR 51511 D	Read Sensor Voltages for Reactor Building Normal Sump Level Sensors
WR 57126 C	Install Strongbacks for Performance of Personnel Hatch Leak Rate Test
WR 55053 A	Perform E/S System Logic Sub System 1, LPI Channel 3 On-line Instrument Calibration
WR 55052 A	Perform E/S System Logic Sub System 1, HPI and RV Isolation, Channel 1, On-line Instrument Calibration
WR 55319 A	Perform Core Flood Tank Pressure Instrument Calibration Required by Technical Specification 4.1.1

No violations or deviations were identified.

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 service, and that limiting conditions for operation were met.

Maintenance procedures reviewed were:

WR 23756 B	Inspect Cables in Penetration 1-C-F-73 for Visible Damage
WR 54883 C	Repair Electrical Penetration 1-C-F-90
WR 57517 A	Perform PM on Breaker TC-9, "Low Pressure Injection Motor 3A"
WR 57516 A	Perform PM on Breaker 3TC-8, "High Pressure Injection Motor 3A"
WR 57557 C	Perform Cable Test of Transformer Bus 2, Unit 3, 3B2T-2
WR 52778 D	Assist I&E in Testing SSF Diesel Instrumentation

No violations or deviations were identified.

8. Reactor Building Spray Valves

A Duke Power Company design review of Oconee electrical loads determined that, under certain conditions of degraded system voltage, the power supply to reactor building spray valves might be inadequate to open the valves immediately under accident conditions. Specifically, valve 2BS-2 was found inadequate and the remaining five valves, two in each unit, were determined to be marginal. The valves involved are, in Unit 1, 1BS-1 and 1BS-2; in Unit 2, 2BS-1 and 2BS-2; and in Unit 3, 3BS-1 and 3BS-2.

At 5:45 p.m. on November 19, valve 2BS-2 was declared inoperable, thus placing Unit 2 in a limiting condition for operation. On November 20, it was decided to operate with all six spray valves open until further action could be taken to improve the voltage situation. The valves are normally closed during reactor operation and open automatically at 10 psig containment pressure. The building spray pumps also start at that pressure. The licensee's justification for operating in this manner is that the spray system is an accident mitigating system and, as such, does not require the double boundary isolation of non-accident mitigating systems. Also, the Technical Specifications, Table 4.4.1, state that the check valves in the spray system are used for containment isolation. Permanent corrective action was to replace the power cables to the valve operators with considerably heavier cable, thus reducing line loss. This action was taken on both valves on each unit. The valves were tested and returned to the normally closed position by November 24.

No violations or deviations were identified.

9. Keowee Hydro Unit No. 2 Out of Service

Keowee Unit 2 was taken out of service at 4:20 p.m. on November 19, due to a burned field coil pole connecting strap. Technical Specifications (TS) permit one Keowee unit to be out of service for 72 hours. TS also permit shutdown of one Keowee unit for maintenance for a period of up to 45 days at

three year intervals, without prior NRC approval. Unit 2 was shut down for maintenance for about 20 days in 1984. For the current repairs, the licensee was permitted to extend the 72 hour period, if necessary, without an emergency TS change, since a 45 day shutdown was already analyzed and a portion of the 45 days had not been used. Repairs necessitated removing the generator rotor. The generator was repaired and Keowee Unit 2 returned to service at 5:55 a.m. on November 27.

10. Licensee Event Reports

The inspectors reviewed nonroutine event reports to verify the report details met license requirements, identified the cause of the event, described corrective actions appropriate for the identified cause, and adequately addressed the event and any generic implications. In addition, as appropriate, the inspectors examined operating and maintenance logs, and records and internal investigation reports.

Personnel were interviewed to verify that the report accurately reflected the circumstances of the event, that the corrective action had been taken or responsibility assigned to assure completion, and that the event was reviewed by the licensee, as stipulated in the Technical Specifications. The following event reports were reviewed:

(Closed) LER 270/85-03 Rod Index Curve Limit Violated: The inspectors verified that all corrective actions specified have been satisfactorily completed. This item is closed.

(Closed) LER 270/83-03 Valve Failed Due to Bent Stem: The inspectors reviewed the corrective actions and verified that all have been completed. This item is closed.

(Open) LER 270/82-10 Stuck Suction Relief on the "2B" MFWP, After a Reactor Trip. This incident resulted in the upper surge tank level falling below technical specification limits. Only one outstanding commitment remains. Station Modification 1584 has been installed, but does not work satisfactorily. Until operational problems are resolved the LER will remain open.

11. Motor Operated Valve (MOV) Torque Switch Setpoints

The residents initiated inspection efforts to review the licensee's program for selecting, setting, and maintaining switch setpoints on safety related MOV's. Discussions to date have centered on the licensee's basis for currently used torque switch setpoints. Additional plans are to investigate valve histories, vendor recommendations, and licensee valve functional testing to ensure that switch setpoints will accommodate maximum differential pressures expected during both normal and abnormal occurrences.

Any findings will be reviewed with the licensee in light of the recently issued IE Bulletin No. 85-03: Motor - Operated Valve Common Mode Failures During Plant Transients Due to Improper Switch Settings. Results will be discussed in the next monthly report.

12. Facility Modifications (37701)

The inspectors continued their review of selected test procedures performed during checkout of the Standby Shutdown Facility (SSF). The previous report listed incorrectly Test Procedure TT/2/A/0400/07-SSF RC Makeup Pumps Flow Verification Tests. The correct number for that test is TT/2/A/0400/07A. Additional tests reviewed were:

TT/1/A/0400/10 SSF - Unit 1 Transfer of Control Test

TT/1/A/0400/07 SSF - Unit 1 RC Makeup Pump Performance Test

TT/3/A/0400/07 SSF - Unit 3 RC Makeup Pump Performance Test

In a test performed on Unit 1 RC makeup pump on November 23, 1984, the pump provided 24.25 gpm at 2275 psig. In a May 17, 1984 test, the Unit 3 RC makeup pump provided 23.5 gpm flow at 2500 psig. The auxiliary service water pump delivered 1750 gpm at 1110 psig as described in the system manuals.

The previous report mentioned the requirements of IE Bulletin 79-23 which pointed out a potential diesel generator failure and specified a 24 hour full load test and requested a response from the licensee on certain circuitry questions. At the time of the bulletin issuance, Oconee had no emergency diesels; however, it is assumed that the bulletin applies to the SSF diesel.

The inspector reviewed the diesel manufacturer's test results as prescribed by Duke Power Company. Included in these tests was a full power load test conducted on October 16 and 17, 1980 at the Power Systems Division of Morrison-Knudsen Company, Inc. The data show that the Oconee diesel generator was operated continuously for 22 hours at 3500 kW (the full power rating) and then for 2 hours at 3850 kW (110%). The data show that voltage and frequency requirements were constant in each of the test periods, and that cooling water temperature and stator temperatures met requirements.

In an internal letter of October 25, 1979, concerning Bulletin 79-23, the licensee stated that corrections had not been made between low KVA rated transformers and high KVA emergency diesel generators without adequate limitations on the flow of circulating currents. The inspector has requested the licensee to verify that the in place Oconee diesel generator wiring meets the requirements of Bulletin 79-23. The results will be given in a subsequent report.

13. Low Pressure Injection (LPI) Pump

While conducting a surveillance test of the 1C LPI pump on October 4, operations personnel noticed excessive noise and below normal flow when the pump was started. The pump was immediately stopped and a subsequent investigation resulted in finding suction valve 1LP-7 closed rather than in the required open position. The valve lineup was rechecked and the pump test was then satisfactorily completed. Further review revealed that the initial valve lineup and test preparation was completed by the night shift prior to testing by the day shift. The initial lineup required the pump to be vented and that 1LP-7 be left open. However, operations vented the pump and then closed 1LP-7 as is usually done in normal venting procedures. The lineup was not reverified by either the day shift operations or performance groups prior to starting the pump. The licensee has reviewed and documented the incident and is taking corrective actions to prevent recurrence. Pending review of the corrective actions this will be identified as inspector followup item 269/85-38-01, Abnormal Operation of Low Pressure Injection Pump.

14. Onsite Review Group (40301B)

The review of the onsite safety review group was completed. A review was made of a computer printout of all operating experience documentation received at Oconee. This was reviewed by the OSRG and screened for applicable information. It was then forwarded to the designated individual in the responsible group.

A followup on the review of in-plant activities for the purpose of identifying deficiencies, determined that assignments were made by the OSRG chairman which would cover this area.

No violations or deviations were identified.