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

Report Nos: 50-269/87-19, 50-270/87-19, and 50-287/87-19

Licensee: Duke Power Company
422 South Church Street
Charlotte, NC 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: May 12 - June 15, 1987

Inspectors: T. D. Peebles for — 6-24-87
J. C. Bryant — Date Signed

T. D. Peebles for — 6-24-87
P. H. Skinner — Date Signed

T. D. Peebles for — 6-24-87
L. D. Wert — Date Signed

Approved by: T. A. Peebles — 6-24-87
T. A. Peebles, Section Chief — Date Signed
Division of Reactor Projects

SUMMARY

Scope: This routine, unannounced inspection involved resident inspection on-site in the areas of operations, maintenance, surveillance, engineered safety feature lineups, follow-up of events, and participation in a site drill.

Results: No violations or deviations were identified in the areas covered in this report.

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REPORT DETAILS

1. Licensee Employees Contacted

*M. S. Tuckman, Station Manager
T. B. Owen, Maintenance Superintendent
*R. L. Sweigart, Operations Superintendent
J. M. Davis, Technical Services Superintendent
C. L. Harlin, Compliance Engineer
*F. E. Owens, Assistant Engineer, Compliance
T. C. Matthews, Assistant Engineer, Compliance
*B. K. Millsaps, Maintenance Services Engineer
*M. D. Clardy, Planning and Scheduling Engineer

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

Resident Inspectors

*J. C. Bryant
P. H. Skinner
*L. D. Wert

*Attended exit interview.

2. Exit Interview

The inspection scope and findings were summarized on June 15, 1987, 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

Not Inspected.

4. Unresolved Items

No unresolved items were identified during 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 Electrical Equipment Rooms
Units 1,2, and 3 Cable Spreading 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.

Unit 1 began the report period at 87% power as limited by RBCU/LPI heat removal capability and continued at that level until May 19 when the unit was taken off line at 11:55 p.m. to repair an oil leak and to degas the main transformer. Unit 1 was held at hot shutdown until it was again placed on line at 7:20 a.m. on May 21 and returned to 87% power.

Unit 2 operated at 88% power throughout the report period, as limited by high steam generator levels.

Unit 3 began the report period at 100% power and remained at that power throughout the report period.

No violations or deviations were identified.

6. Surveillance Testing

Surveillance tests were reviewed by the inspector 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:

IP/3O5/3	RPS "C" On-Line (Unit 1)
PT/O/A/1103/15	Reactivity Balance, Estimated Critical Rod Position
IP/3O5/3	RPS "C" On-Line, CRD Breaker Portion (Unit 2)
IP/3O5/3	RPS "C" On-Line Test (Unit 3)
PT/O/A/0400/4	SSF D/G ASW Performance Test

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 witnessed in whole or in part:

MP/O/A/1210/4	Rev. 7 - Refurbish Actuator on 1CCW-10
	Repairs to Unit 1 Condensate Booster Pumps
WR 99549 B	Replacement of Teledyne Seismic Switch
WR 52695 F	1A1 SSRHDT Valve Repair

No violations or deviations were identified.

8. Unit 3 Failed Fuel

On 5 June, the licensee determined, based on increasing levels of Iodine-131 in reactor coolant samples, that Unit 3 has a small amount of failed fuel. Initial levels of activity (about 0.49uCi/ml dose equivalent I-131) indicated that about 0.26% of the fuel has failed (approximately 100 pins). A set of temporary precautionary operating guidelines was issued and operation at 100% power was continued. RCS activity decreased to a level of 0.27uCi/ml I-131 dose equivalent by June 8, which corresponds to about 0.12% of failed fuel. Along with careful monitoring of primary activities, secondary system activities were closely monitored since the unit has been operating with a very small, steady steam generator tube leak of about 1X10-4 gpm). Secondary system Iodine-131 activities remained less than MDA with the exception of moisture separator drain tanks where levels of 1.3X10-7 uCi/ml were measured. The resident inspectors will continue to stay abreast of developments.

9. Inspection of Open Items

The following open items are being closed or will be left open, as indicated below, based on review of licensee reports, inspection, record review, and discussions with licensee personnel, as appropriate.

(Closed) LER 269/86-06: Anticipatory Trip From 48% Power Due to Feedwater Pump Trip Caused by Check Valve Failure. The event was initiated by trip of a heater drain pump and failure of its check valve to close completely, leaving a back flow path through the heater. This resulted in loss of suction and tripping of a condensate booster pump and subsequent tripping of the feedwater pump on low suction pressure. Only one feedwater pump was in operation. Repairs have been completed.

(Open) LER 269/86-13: Improper Review and Approval of Procedures Due to Management/Quality Assurance Deficiency: All improperly approved procedures are under review for proper approval signatures.

(Open) LER 269/87-03: Inadequate Overpressure Protection For The Auxiliary Steam Header. Temporary corrective actions are complete. Awaiting design change.

(Open) LER 270/82-10: Stuck Suction Relief Valve On "2B" MFWP After A Reactor Trip. This event resulted in plant modifications to establish a feedwater pump recirculation flow path to the condenser hot wells. Unit 3 modification has been completed. All mechanical work has been completed on Units 1 & 2. The electrical work is scheduled for EOC 10 on Unit 1 and EOC 9 on Unit 2.

(Closed) LER 270/86-06: Reactor Trip by Anticipatory Trip Due to Loss of Feedwater Pumps. Apparently the problem was caused by a malfunction of the turbine header pressure Hand/Auto controller in the ICS. Replacement of this component appears to have corrected the problem.

(Closed) LER 270/87-04: Reactor Trip on High Steam Generator Level. This trip, and others in the past, were caused by anomalies in the BTU limit circuitry of the ICS. The circuitry has now been modified on all three units so that BTU limit inputs are bypassed with the reactors above 25% power. The purpose of the trips is maintain steam quality for turbine protection at low power.

(Closed) LER 287/84-01: Load Shed Source B Fuse Block Discovered Not Installed - Manually Pulled by Person Unknown. Immediate corrective action was to install locks on fuse block panels. Locks were verified at the time by resident inspectors. NSM 1426 has now been completed providing dedicated fuse blocks for each local load shed trip relay, with a local indicating light for position indication and computer alarms for loss of load shed control power.

(Open) LER 287/85-05: Anticipatory Reactor Trip on Loss of Main Feedwater Due to Failure of Regulating Valve to Operate Properly. Unit 3 has been modified by addition of a valve positioner on the regulator valve. Modification is in place and operable but not in final configuration. Units 1 and 2 have not been modified.

(Closed) LER 287/87-01: Loose Parts and Reduced Reactor Coolant Flow Due to Suspected Equipment Failure. Problems with 3B reactor coolant pump were discussed in Report No. 50-287/86-33 and subsequent reports.

(Closed) LER 287/87-07: Isolation of all Three Reactor Building Cooling Units During Startup. This event was discussed in detail in Report No. 50-269,270,287/87-16.

(Open) 269,270,287P2185-02: Discrepancies in Weights of Limitorque Valve Operators. DPC letter of 12/31/86 states that the B&W Owners Group has determined that B&W does not have all the information needed to resolve this issue. DPC will pursue acquisition of information from Limitorque directly. Schedule for completion has not been determined.

(Closed) P2182-01: Containment Combustible Gas Control. Recommended modifications to the hydrogen recombiner controls were completed in April 1987.

(Closed) P2186-09: Failure of Coils in Certain Class 1E Motor Starters and Contactors Supplied by Westinghouse. DPC Potentially Reportable Item report of August 25, 1986, states that equipment search revealed none of the identified coils are in use or in stock at Oconee.

(Closed) IFI 269,270,287/86-21-01: Inspection of Wiring on EQ Limitorque Operators. This item is being closed since the same inspection is required by TI 2515/75, Inspection of Limitorque Motor Valve Operators Wiring to Determine if Wiring is Environmentally Qualified.

(Closed) IFI 269,270,287/86-24-02: EQ Documentation of Reactor Building Cooling Units. A DPC letter of May 21, 1987, certifies the qualification of Texaco Premium RB lubricant as environmentally qualified for the RBCUs.

(Closed) IFI 270/85-20-04: Long Term Temporary Modifications. The three month review is now in a computer program which, if a response is not received within two weeks, sends a letter to the responsible engineer's section head. If the section head's response is not received in two weeks, a letter is sent to the department superintendent. Licensee stated that in almost two years of operation, only one letter has gone to a superintendent.

(Closed) IFI 287/84-03-02: Corrective Actions to Load Shed Circuits. This item is the same as LER 287/84-01.

10. Semiannual Effluent Release Reports (90713)

Technical Specification 6.6.1.4 requires the licensee to submit within 60 days of January 1 and July 1 of each year, routine radioactive effluent release reports covering the operation of unit during the previous six months of operation. Additionally, the Radioactive Effluent Release Reports shall include an assessment of radiation doses from the radioactive liquid and gaseous effluents released from the station during each calendar quarter. The assessment of the radiation doses shall be performed in accordance with the Offsite Dose Calculation Manual.

The inspector reviewed the Semiannual Radiological Effluent Release Report for the period July 1 - December 31, 1986. The review included an examination of the liquid and gaseous effluent release data as well as dose estimate data. Selected data from this report and previous reports are presented in Table 1. Although a slight increasing trend for the three unit station was noted for liquid releases containing fission and activation products from 1984 to 1986, the other quantities of radionuclides released and the annual dose estimates did not follow any significant trends from 1984 to 1986. The gaseous releases for each unit at Oconee during 1986 were slightly above the 1985 gaseous release average which was based on data collected from 21 operating PWRs in Region II. The liquid releases per unit at Oconee did not vary significantly from the 1985 Region II liquid release average.

Table 1

Oconee Nuclear Station
Semiannual Effluent Release Summary, 1984-1986

Year	1984	1985	1986
No. Abnormal Releases			
a. Liquid	1	2	2
b. Gaseous	2	0	2
Liquid Waste Released (gallons)	1.80×10^{7}	1.88×10^{6}	1.18×10^{8}
Activity Released (Curies)			
a. Liquid			
1. Fission and Activation Products	1.58×10^{0}	4.16×10^{0}	5.85×10^{0}
2. Tritium	1.28×10^{3}	1.24×10^{3}	1.34×10^{3}
3. Gross Alpha	0	0	0
b. Gaseous			
1. Noble Gas	2.28×10^{4}	2.35×10^{4}	2.43×10^{4}
2. Halogens	1.33×10^{-1}	4.95×10^{-3}	3.39×10^{-2}
3. Tritium	4.17×10^{2}	4.28×10^{1}	4.31×10^{1}
4. Gross Alpha	0	0	0
Dose Estimate (mrem)			
a. Liquid			
Whole-body (adult)	2.81×10^{-1}	1.84×10^{0}	1.40×10^{0}
b. Gaseous			
1. Whole-body	9.73×10^{-2}	7.11×10^{-2}	8.73×10^{-2}
2. Skin	2.25×10^{-1}	2.08×1^{-1}	2.51×10^{-1}