



UNITED STATES  
 NUCLEAR REGULATORY COMMISSION  
 REGION II  
 101 MARIETTA STREET, N.W.  
 ATLANTA, GEORGIA 30303

Report Nos.: 50-269/84-32, 50-270/84-32, and 50-287/84-36

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: November 18 - December 10, 1984

Inspectors: <u>HC Dance/pr</u>	<u>12/31/84</u>
J. Bryant	Date Signed
<u>HC Dance/pr</u>	<u>12/31/84</u>
K. Sasser	Date Signed

Accompanying Personnel: L. King

Approved by: <u>HC Dance</u>	<u>12/31/84</u>
H. Dance, Section Chief	Date Signed
Division of Reactor Projects	

SUMMARY

Scope: This routine, unannounced inspection entailed 113 resident inspector-hours on site in the areas of operations, surveillance, plant startup and engineered safeguards.

Results: Of the four areas inspected, no items of noncompliance or deviations were identified in three areas; one item of noncompliance was found in one area (Violation 50-287/84-36-01, Incomplete Documentation).

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## 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
- \*H. Lowery, Shift Operating Engineer

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

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on December 12, 1984, with those persons indicated in paragraph 1 above.

### 3. Licensee Action on Previous Enforcement Matters

Closed - Unresolved Item 50-270/84-25-01, Airborne Contamination. This item was inspected and has been upgraded to a Violation in Report Nos. 50-269/84-31, 50-270/84-30 and 50-287/84-34.

Closed - Unresolved Item 50-269/84-26-01, Contaminated Oil Disposal. This item has been upgraded to a Violation and is reported in Report Nos. 50-269/84-31, 50-270/84-30 and 50-287/84-34.

### 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 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 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 inspection period in a refueling outage. The reactor was taken critical at 5:39 a.m. on November 29. Two reactor trips were experienced during power ascension, and difficulties were encountered with turbine vibration. At the end of the report period the reactor was at 50% power and proceeding with power escalation. Startup problems are discussed elsewhere in this report.

Unit 2 operated at essentially full power throughout the reporting period and had completed 365 days of continuous on line operation at the end of the period. Unit 3 began the reporting period in preparation for startup following a shutdown due to a steam generator tube leak as discussed in Report No. 50-287/84-31. The reactor was taken critical at 11:47 a.m. on November 19. The inspectors witnessed the startup, which is discussed in more detail in another section of this report. The unit has operated at essentially full power since startup.

#### 6. Surveillance Testing

The following completed surveillance tests 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.

WR 55175A - Perform RPS Channel A on line test.

WR 55904A - Perform control battery test on 2CA and 2CB batteries.

WR 56836 - Perform the Keowee fire protection equipment inspection and check.

WR 55313A - Perform source range - intermediate range channel test.

WR 55129A - Perform 230KV switchyard battery daily test.

WR 55062A - Perform E/S analog channel "c" on line instrument calibration.

WR 55059A - Perform E/S system logic subsystem 2, reactor building spray, channel 8 on line instrument calibration.

WR 55058A - Perform E/S system logic subsystem 2, reactor building isolation and cooling channel 6, on line instrument calibration.

No violations or deviations were identified.

#### 7. Maintenance Activities

The following completed maintenance activities were reviewed to determine that approved procedures were in use; proper authorization was obtained to begin work; provisions for fire, cleanliness and exposure control were in effect; there were proper provisions for returning equipment to service; and limiting conditions for operation were met.

WR 15436B - Computer point #A1287 (Reactor building pressure) out of Specification.

WR 15468B - Oil leaking from snubber at Col B-38. Investigate and repair.

WR 10553B - Repair leak on 1PT-39, core flood tank B.

WR 15509B - Investigate and repair cause for RPS Feedwater/Reactor trip PS alert. 1A FWP contact buffer shipped in "B" RPS channel.

WR 56487 - Perform PM on Grinnel diaphragm valve 1CA-3.

WR - Repair packing leak on 2HP64 (seal flow)

In addition, portions of several maintenance jobs in preparation for startup were observed.

#### 8. Unit 1

Following the refueling outage, zero power physics testing was completed and the reactor taken critical at 5:39 a.m. on November 29. Power was increased to 15% for additional physics testing and turbine overspeed tests. The inspectors witnessed portions of the testing and startup. Plant parameters at criticality were as predicted.

While in the power ascension program, the reactor tripped at 4:17 a.m. on December 2 from 45% power due to the main generator field breaker opening. A space generator field breaker was installed. A breaker control power problem was found in a loose multi-pin connector.

During the trip, the main steam code safety valves lifted, as was to be expected. Two of the safeties did not reset until header pressure was reduced to 850 psig. On repressurization, these two lifted again, lower than the setpoint of 1065 psig. The set points were adjusted and startup begun. The reactor was critical at 1:43 p.m.

On December 3, 1984, the reactor tripped from 56% power at 10:06 p.m. due to loss of a main feedwater pump (FWP). The pump tripped when the FWP auxiliary oil pump was shutdown, procedurally, after the FWP reached 4200 RPM. The FWP shaft driven oil pump did not maintain sufficient hydraulic pressure for control operation. Only one main feedwater pump was in operation at the time. Although shutting down the auxiliary oil and pump at that time was procedurally acceptable, normally the auxiliary pumps are not shut down until both feedwater pumps are operating. At that time, hydraulic demands are not as great on a single pump.

Following the reactor trip, the same two code safety valves failed to seat completely. Secondary side pressure was reduced to 850 psig and the valves seated. On returning to normal pressure a different valve opened. Pressure was again reduced to 850 psig then returned to normal. All valves remained seated.

All code safeties had been checked and reset if needed during startup from the refueling outage. Normal procedure is to check valves on one of the two main steam headers (8 valves) on each shutdown. Valve set points range from 1050 to 1104 psig. If two valves are found to be more than 1% out of tolerance, all valves are reset. On the valve check prior to startup, the two valves which twice failed to reseat completely had been found slightly out of tolerance. The licensee is reviewing procedures and personnel to determine if there are any differences in technique which might have contributed to valve irregular performance. The resident inspectors will follow up on findings and any action taken (Report No.50-269/84-32-02).

9. Unit 2 - Reactor Building Spray - Non-Routine Event

At 9:20 p.m. on November 27, 1984, both trains of Unit 2 reactor building spray (RBS) were out of service for slightly less than two minutes due to an operational error. At the time, all three trains of reactor building cooling were operable. The event occurred during preparation for performing PT/2/A/204/07, RBS System Performance Test.

Technical Specification (TS) 3.3.6 permits one train of RBS to be taken out of service for up to 12 hours provided the other train is operable or for 7 days provided the other train and all three trains of reactor building cooling are operable. In order to perform the operability test, the RBS trains are tested one at a time. The sequence of events which led to both trains being out of service at once is described below.

In preparation for the test, Nuclear Equipment Operator (NEO) A was instructed to prepare four do not operate tags, one each for the breaker and the manual hand wheel for each train (Valves 2BS-1 and 2BS-2). NEO B, as performer, and NEO C, as verifier, were instructed to open and tag out the breaker for 2BS-1 in the equipment room, then dress out, enter the penetration room and tag out 2BS-1 hand wheel. The two NEO's would then remain in the penetration room until train A was tested, return it to service, then isolate train B, remain until it was tested then return it to service. Another team was to be sent to the equipment room to close 2BS-1, open 2BS-2, then return 2BS-2 to service when the test was completed.

NEO B reviewed the test procedure and made hand-written notes of his duties rather than making a copy of the master which was to remain in the control room.

Shortly before the test began, NEO C was called off on another job and NEO A was given telephone instructions by the RO and told to replace NEO C as verifier. NEO B opened and tagged 2BS-1, verified by NEO A. He then became aware that he had hand wheel tags for 2BS-1 and 2BS-2 but a breaker tag for only 2BS-1. NEO A knew that she had made out a tag for 2BS-2 also. The pair assumed they had misplaced the breaker tag for 2BS-2; they then opened and verified breaker 2BS-2. Actually, the Unit 2 SRO had retained the 2BS-2 breaker tag since another team would be sent out to open and tag out the breaker.

As soon as 2BS-2 was opened, an alarm was received in the control room. The RO immediately paged NEO B. Meanwhile NEO's A&B had exited the equipment room, then realized their error in opening both trains of the RBS system. They reentered the equipment room and closed 2BS-2. The elapsed time that both trains were out of service was slightly less than two minutes.

T.S. 3.3 requires that if the conditions of TS 3.3.6 are not met, the unit will be at hot shutdown within 12 hours. Due to the short time involved, no shut down action was taken.

The event was identified by the licensee, NRC was notified, and there have been no events which could reasonably have been expected to prevent it. The abnormal operating condition was corrected immediately. Licensee management held discussions with all parties involved and in extending this to all operating personnel to impress upon them how it must be verified that instructions are understood completely and that operations will not be performed without a copy of the job procedure at hand.

The event is a violation of TS 6.4.1 which requires that the station be operated in accordance with procedures. However, the licensee appears to have met the conditions of 10 CFR 2, Appendix C, in identifying, reporting, and corrective action; therefore, this violation will not be cited.

#### 10. Audit of Unit 3 Startup

The resident inspectors completed an audit of the Unit 3 startup following its shutdown to repair leaking steam generator tubes. The controlling procedure for unit startup, OP/3/A/1102/01, was initiated on November 16, 1984 and completed on November 19, 1984 when the turbine was put on-line and the Power Operations procedure started.

During the audit, all procedures associated with unit startup, including those for operations, surveillances, and chemistry, were reviewed to verify their performance and adequacy. The procedures reviewed were:

PT/3/A/150/15D  
PT/0/A/0150/08A  
PT/3/A/150/27

Intersystem LOCA Leak Test  
RB Personnel Lock LRT  
Local Type B LRT of Penetrations 19 & 20

PT/0/A/600/18	EFWT Operability
PT/0/A/201/04	PORV
PT/0/A/251/12	LPI Check Valve Operability
PT/0/A/251/6	HPI Check Valve Operability
PT/3/A/115/08	RB Containment Isolation & Verification
PT/0/A/201/03	Core Flood System
PT/0/A/305/01	Rx Manual Trip Test
OP/3/A/1102/01	Controlling Procedure for Unit Startup
OP/3/A/1103/15	Reactivity Balance Calculation
OP/0/A/1103/05	Pressurizer Operation
OP/3/A/1106/08	Steam Gen. Hot Soak, Fill, Drain & Layup
OP/3/A/1104/04	LPI System
OP/3/A/1103/02	Filling and Venting of the RCS
OP/3/A/1104/02	HPI System
OP/0/A/1105/11	Loose Parts Monitor
OP/B/A/1103/06	RC Pump Operation
OP/3/A/1104/05	Building Spray System
OP/3/A/1104/01	Core Flooding System
OP/0/A/1105/09	Control Rod Drive System
OP/0/A/1106/17	Hydrogen System
OP/0/A/1106/02	Feedwater System
OP/3/A/1106/01	Turbine Generator
OP/3/A/1103/04	Soluble Poison Concentration Control
OP/0/A/1102/20	Shift Turnover
OP/3/A/1106/14	Moisture Separator Reheater
OP/3/A/1106/02	Condensate System
OP/3/A/1104/08	Component Cooling Systems
OP/3/A/1106/06	Emergency Feedwater System

Results of the audit identified several inadequacies with the controlling procedure as follows:

- a. Enclosure 4.1, Step 1.1 of the procedure requires receipt of an oral report from Department Superintendents that all work necessary for startup is complete and that this report is noted in the unit shift supervisors log. The step had been signed by the unit operating engineer however there was not a note in the unit shift supervisors log.
- b. Enclosure 4.1, Step 2.1, and Enclosure 4.2, Step 2.2, require calculation of adequate shutdown margin prior to heating up the RCS to 250F and hot shutdown conditions, respectively, using the reactivity balance procedure, OP/3/A/1103/15. The calculations of shutdown margin corresponding to these two steps could not be found. Those steps had been signed as having been done and licensee shift operating personnel stated that the required calculations were performed. Other calculations of shutdown margin were in the file, however, those performed in conjunction with the two referenced steps were not.

- c. Enclosure 4.3, Steps 2.3 and 2.5 require documentation of safety rods and regulating rods withdrawal using the control rod drive procedure, OP/O/A/1105/09. The appropriately signed procedures could not be located and when questioned the licensee acknowledged that the procedure had not been completed. The licensee subsequently stated that the rod withdrawal procedure had recently been revised to include signoff on steps which previously did not require signatures. The on duty personnel apparently did not know of the revised procedure and therefore failed to document rod withdrawal to criticality as required.

The resident inspector was present in the Unit 3 control room during the rod withdrawal sequence in question and found nothing to indicate that the licensee operators acted improperly or violated the intent of the procedures. However the required documentation was later found lacking as stated above.

Technical Specifications 6.4.1 states that the station shall be operated and maintained in accordance with approved procedures with appropriate check-off lists and instructions. Failure to properly document operator actions required by the controlling procedure for unit startup is in violation of the Technical Specifications even though the actions were properly taken. This is a violation, 50-287/84-36-01, Incomplete Documentation.