



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

Report Nos: 50-269/85-20, 50-270/85-20, and 50-287/85-20

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

Facility Name: Oconee Nuclear Station

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

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

Inspection Conducted: July 9 - August 12, 1985

Inspectors: C. H. Burger, for
J. C. Bryant

8/27/85
Date Signed

C. H. Burger, for
M. K. Sasser

8/27/85
Date Signed

C. H. Burger, for
L. P. King

8/27/85
Date Signed

Approved by: H. C. Dance
H. C. Dance, Section Chief
Division of Reactor Projects

8/27/85
Date Signed

SUMMARY

Scope: This routine, unannounced inspection entailed 373 inspector-hours on site in the areas of operations, surveillance, maintenance, plant trips, inspector followup items, licensee event reports, station modifications, and independent inspection.

Results: Of the eight areas inspected, no items of noncompliance or deviations were identified in seven areas; two items of noncompliance were found in one area: (Violations: Failure to address inoperable effluent monitors in semiannual report and failure to report revisions to the FSAR as required).

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *M. S. Tuckman, Station Manager
- *J. N. Pope, Superintendent of Operations
- *T. S. Barr, Superintendent of Technical Services
- *R. Knoerr, Project Service Engineer
- *R. T. Bond, Compliance Engineer
- *T. C. Matthews, Technical Specialist
- *C. Harlin, HP Coordinator
- *E. Brown, Health Physics

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 August 9, 1985, with those persons indicated in paragraph 1 above. The licensee made no specific comments concerning the two violations (paragraphs 8 and 13). 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) VI0/287/84-36-01: Failure to document startup actions - Unit 3. Corrective actions have been taken and have been reviewed by the resident inspectors.

(Closed) VI0/269/85-03-01: Inadequate preparation for shipment of radioactive material. The licensee's corrective actions were inspected by a Regional inspector and found to be satisfactory.

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 Electrical Equipment Rooms
- Units 1,2, and 3 Cable Spreading Rooms
- Station Yard Zone within the Protected Area

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

Unit 1 began the report period at 100% power and continued at that level until 12:53 pm on July 15 when 1B main feedwater pump (MFDWP) control valves closed causing a reactor power run back. Fifteen seconds later MFDWP stop valves reset themselves and reopened. Operators took control and reduced power to 55%. After several hours investigation, without determining the cause of valves closing or reopening, MFDWP B was returned to service and power ascension began. At 8:48 p.m. on July 15, after perturbations were received in feedwater flow, MFDWP B was shut down and power reduced to 60%. On July 17, Unit 1 power was increased to 100% with MFDWP B in "Hand" and continued operation in that mode through the remainder of the report period.

Unit 2 began the report period critical at low power awaiting generator field breaker replacement. The breaker was replaced and Unit 2 placed on line at 4:37 a.m. on July 10. Power was increased to 94% where it was limited by steam generator "B" level. At 7:10 pm on July 11, Unit 2 tripped from 94% power due to high reactor coolant pressure resulting from an erroneous signal which closed the turbine control and intercept valves. The erroneous signal was caused by a mechanic who, while investigating a problem

with the turbine header pressure control portion of the ICS, plugged in a test meter and introduced a noise signal which caused the valves to close. All reactor systems performed normally and there was no ESF actuation. The reactor was critical again at 8:31 p.m. and power was returned to 94% and continued at that power level throughout the remainder of the report period.

Unit 3 operated at essentially full power until 3:16 p.m. on July 14 when power was reduced to 70% and reactor coolant pump (RCP) 3B2 was taken out of service due to low oil level in the lower oil pot. The unit was shut down briefly on July 2 to refill the same pot (see Report No. 50-287/85-17). After shut down of the RCP, Unit 3 was increased to 74% power and continued operation at that level with three RCP's in service. At 2:37 a.m. on July 23, Unit 3 tripped on high RCS pressure following a feedwater transient apparently caused by an Integrated Control System (ICS) failure. This trip is discussed in more detail in paragraph 9.

The unit continued operation at 74% until shut down for refueling on August 8.

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, tests were acceptable and systems restoration was completed.

Surveillances witnessed in whole or in part are as follows:

WR 55313A Source & Intermediate Range Test, Unit 2

WR 55314A RPS Channel A Calibration & Functional Test, Unit 2

PT/0/A/1600/10 SSF Diesel Monthly Run 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 work witnessed in whole or in part was as follows:

MP/O/A/2001/4 CRD Breaker Inspection and Maintenance, unit 2

IP/O/B/330/9 CRD System Check Before Test Trip of CRD Breakers

No violations or deviations were identified.

8. Inoperable Effluent Monitors

The inspectors reviewed the performance of radiation instrumentation alarms (RIA's) for liquid and gaseous effluents to determine that performance was satisfactory or that proper compensatory action was being taken. The inspectors found that a number of RIA's were inoperable but that in each case proper sampling was being performed as required by TS 3.5.5-1 and 3.5.5-2. However, TS also require that if a monitor is out of service for more than 30 days, the matter will be addressed in the next Semiannual Radioactive Effluent Release Report along with an explanation of why the inoperability was not corrected in a timely manner.

The inspectors found the following monitors to have been out-of-service for more than 30 days:

(a) Low Pressure Service Water (LPSW) monitors

- i. 1RIA-35 inoperable beginning 11/9/84 or before (Unit 1)
- ii. 3RIA-35 inoperable beginning 11/25/84 or before (Unit 3)

(b) Gaseous Waste Decay Tank monitors

A minimum of one of either RIA-37 or RIA-38 is required operable during gas releases. RIA-37 is always inoperable during a release because the instrument always goes offscale, due to either poor design or the fact that waste gas is not allowed to decay as long as originally planned when the system was designed. Therefore, when RIA-38 is inoperable the minimum is not met and compensatory action is required. 1RIA-38 has been inoperable since 10/12/84.

Although sampling had been performed as required by TS, the semiannual report for the period July 1 - December 31, 1984 did not address the inoperable monitors in any fashion. This is an apparent violation of TS 3.5.5.1 and 3.5.5.2; (Violation- Failure to address inoperable effluent monitors in semiannual report, 269, 270, 287/85-20-01).

9. Unit 3 Trip

On July 23, Unit 3 was in 3 reactor coolant pump (RCP) operation at 74% power. Feedwater flow was unbalanced and close to maximum on A main feedwater pump (MFDWP) due to the unbalanced primary system. A surge in A MFDWP caused heat generation limits to be reached which caused an excessive reduction in A MFDWP flow. Operators took manual control of feedwater flow but could not prevent a trip on reactor coolant system high pressure seconds later. Safety systems functioned properly during the transient. The steam generator levels were maintained by B MFDWP, all steam safety valves reseated properly. There was no engineered safeguards actuation. Cause of the feedwater transient was later found to be a failed feedwater ratio multiplier in the Integrated Control System (ICS). Difficulty was experienced with several secondary system controls, apparently caused by problems with one electrical breaker. Approximately one hour after the trip the turbine driven emergency feedwater pump (TDEFWP) was locked out due to excessive relay chatter. The TDEFWP had not been called upon to operate during the transient and was not operating when locked out.

The ratio multiplier and breaker were replaced and the reactor was taken critical at 11:25 a.m. and raised to 5% power. The TDEFWP was inspected and tested and declared operable at 5:15 p.m. The turbine generator was placed on line at 5:46 p.m. and reactor power was increased to 72% by 6:00 a.m. on July 24.

10. Review of Licensee Event Reports

The inspectors reviewed nonroutine event reports to verify that 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 TS. The following event reports were reviewed:

(Closed) LER 269/83-19: Potential deficiency of capstan springs in Pacific Scientific mechanical snubbers. The one snubber that was in service was replaced with a nonsuspect snubber. This snubber and the eleven in stores were returned to the manufacturer.

(Closed) LER 269/84-01: Boron concentration of core flood tank less than TS requirements. Procedures have been modified and now direct boration to 2100 ppm whenever water is drained from a core flood tank.

(Closed) LER 269/83-21: Freezing of BWST level and temperature transmitters. The licensee's proposed modification to move the transmitters into the auxiliary building could not be carried out; however, other methods of protection were employed and proved successful in sub zero temperatures in January 1985.

(Closed) LER 269/84-05: Surveillance interval exceeded for some Keowee fire protection equipment. Satisfactory program modifications to prevent recurrence have been completed.

(Closed) LER 269/85-03: ESFAS HPI system actuation setpoint adjustment. The inspectors have reviewed events and actions taken and have discussed the matter with Reactor Licensing. It appears that Licensee actions have been timely and conservative. Although the research by B&W which precipitated the set point changes continues, the research is being followed by Reactor Licensing. This LER is closed.

(Closed) LER 269/85-06: Reactor trip from 17% power during a divergent secondary pressure swing. Licensee action during the event was proper. There is an ongoing program to determine possible changes to prevent this recurring instability.

(Closed) LER 270/85-02: Reactor trip at low power on high flux indication from recorder during low power physics testing.

(Closed) LER 270/85-04: Reactor trip on loss of main feedwater caused by short circuit in a terminal block. Reactor was at 29% power with only one main feedwater pump in operation.

(Closed) LER 270/85-05: Reactor trip due to high reactor coolant system pressure. Trip resulted from closure of turbine control and intercept valves initiated by a spurious signal. Signal originated in the EHC cabinet while maintenance work was in progress within the EHC cabinet.

(Closed) LER 287/81-13: A one inch breach in a fire barrier was discovered in the floor - cause unclear. An extensive program of fire barrier improvement has been implemented.

(Closed) LER 287/84-05: Instrument air line to the Powdex outlet valves was accidentally sheared. Procedures have been modified to require placing the turbine driven emergency feedwater pump (TDEFWP) in "Run" after automatic actuation. This will prevent automatic shut down of the TDEFWP upon placing main feed pumps on line. Operator action is required to shut down the TDEFWP.

11. Inspector Followup Items

(Closed) IFI 269/84-06-01: Core flood tanks. This item is the same as LER 269/84-01, closed elsewhere in this report.

(Closed) IFI 269/84-36-02: Code safety valves reseating late. The licenses' ongoing program to refurbish main steam safety valves is described in Report No. 50-269/85-01 and is in progress. This item is closed.

12. Unit 3 Refueling Shutdown - End of Cycle 8

Unit 3 was shut down on August 8, 1985 for the end of cycle 8 refueling. The shutdown is scheduled to last 57 days. Some of the major work scheduled is as follows:

- a. Eddy current inspection of approximately 4300 steam generator tubes.
- b. Sludge lance both steam generators.
- c. Disassemble and rework two low pressure turbines.
- d. Disassemble and rework both main feedwater pump turbines.
- e. Remove and rework one reactor coolant pump.
- f. Inspect, test and plug moisture separator reheater tubes.
- g. Aris hot leg inspection.

13. Changes to the FSAR

Title 10, Part 50.71 (4), of the Code of Federal Regulations requires that all revisions to the FSAR be filed with NRR no less frequently than annually and that revisions are reported within six months of the change.

Changes to the Oconee FSAR for the period ending December 31, 1984 were not filed by July 1, 1985 nor was a request for an extension filed or granted by that date. In a letter dated July 1, 1985 the licensee stated that the report would be late. This action does not appear to meet requirements of the regulation and is an apparent violation, (Violation 50-269,270,287/85-02; Failure to report revisions to the FSAR as required).

14. Design, Design Changes, and Modifications (37700)

The inspectors reviewed the Nuclear Station Modification (NSM) program and several procedure changes which had been made since the last inspection in this area. They reviewed several completed, or essentially completed, NSMs to determine if they had been reviewed and approved by the licensee in accordance with 10 CFR 50.59 and the TS, and if the reviews were technically

adequate. The NSM packages were examined to verify that work was controlled by established procedure, completed work was properly tested and met acceptance criteria, and that operating and surveillance procedures, operator training, and as-built drawings were modified to reflect the changes.

The following NSMs were reviewed:

ON-0803	Quench Tank Drain Pumps
ON-0821	Permanent Installation of RIAs in Turbine Building Sumps
ON-1965	Replace Decay Heat Removal Suction Valves with Different Operators
ON-2288	Provide Auto Actuation of Shunt Trip on Control Rod Drive Circuit Breakers
ON-1396	Reactor Building Sample System - Upgrade Post Accident Sampling System - Unit 3
ON-2248	Sump Level Indicators - Unit 3

The inspectors found that program requirements were met and procedures followed. One area was questioned in that ON-2288 reflected that NRR notification and a change of TS were not required. The licensee stated that the NSM was so marked because an affirmative statement at that point in the procedure automatically stopped work on the NSM until NRR approval for the modification was obtained and TS changes were approved. This NSM was made by direction of NRR and a TS change has been submitted by direction of NRR; therefore, the licensee said the NSM was not marked as requiring approval, in order to avoid delay. The NRR letter requires that shunt and undervoltage trips be tested independently. Ocone procedures require this independent testing and the inspectors have verified that it is performed in this manner.

In progress NSM 1935, Unit spent fuel pool and recirculating water upgrade, was inspected to determine if the modification was being performed in accordance with requirements, testing was satisfactory, and appropriate controls were in effect.

The weld program procedure was reviewed from initiation of the isometrics through QA review of the completed welds. Two welds were tracked from preparation of the weld data card, through welder qualification to review of radiographs. No problems were identified.

A large number of NSMs have been completed physically but remain open waiting completion of all paperwork. The licensee has established a task force to correct this problem and to prioritize the NSM backlog. At this time, the task force has reviewed approximately 1500 outstanding NSMs and has closed out over 1300.

The inspectors reviewed Oconee Nuclear Station Directive 2.3.5, Control of Temporary Modifications (TSM). This document was approved on December 1, 1984 and was modified on May 20, 1985. The document established controls, which met the requirements of 10 CFR 50.59, the TS, installed jumpers and other temporary modifications.

The directive requires that all TSMs be reviewed every three months to determine status and continuing need. This program is implemented by a notice of required review from the project operating engineer to the originator of the modification request. The review is made and a report sent to Project Services, which maintains the NSM file. On review of selected TSMs, the inspectors found two instances where, although the notice of review had been sent two months previously, there was no documentation that the review had been made. There is no feedback to the operating engineer as to whether or not the review was made.

At the exit interview, the licensee acknowledged the apparent loophole and stated that it would be reviewed and corrected. The resident inspectors will followup on the significance of any possibly missed reviews and on the system of control. This is an inspector followup item (IFI 50-270/85-20-03, Review of Temporary Modifications).

During inspection, the inspectors noted a temporary jumper which was not listed in the control room TSM log book. This work request, No. 49814, was initiated on September 2, 1980, four years before the current TSM program was begun. The TSM installed a jumper on 2RIA36 (radiation instrument alarm); the jumper is still in place. The inspectors will pursue this item to determine the propriety of installing and leaving the jumper in place under a TSM (IFI 270/85-20-04, Long term temporary modifications). The licensee has a recently initiated program in effect to locate and correct any outstanding TSMs which are not properly identified and logged.

No violations or deviations were identified.