



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

Report Nos.: 50-269/85-03, 50-270/85-03, and 50-287/85-03

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: February 11 - March 10, 1985

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

4/4/85
Date Signed

C. W. Burger, for
K. Sasser

4/4/85
Date Signed

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

4/10/85
Date Signed

SUMMARY

Scope: This routine, announced inspection entailed 295 resident inspector-hours onsite in the areas of operations, maintenance, surveillance, refueling shutdown, material shipment, Licensee Event Reports, and Inspector Followup Items.

Results: Of the seven areas inspected, no items of noncompliance or deviations were identified in six areas; one item of noncompliance was found in one area (material shipment - inadequate preparation; paragraph 9).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *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
- *J. Brackett, QA Senior 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 March 12, 1985, with those persons indicated in paragraph 1 above. Concerning the violation of radioactive shipment procedures, the licensee acknowledged the violation and stated that the situation is being reviewed to determine actions to avoid repetition (paragraph 9). An Inspector Followup Item concerning installed instrumentation was discussed and the licensee reiterated a commitment made earlier during the inspection period (paragraph 10). Proposed actions for rework of main steam relief valves was discussed (paragraph 12). 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 Inspection Findings

(Closed) Violation 50-287/84-28-01: Failure to Write NCI Report. An instruction stating the responsibility of all personnel to initiate Nonconforming Item Reports has been placed in the Station Directives. A description of the handling of NCIs has been placed in the Compliance Manual. This item is closed.

(Closed) Unresolved Item 50-269/82-25-01: Determination of an Analysis as Safety Related. The area of safety related and important to safety designations was examined by Office of Inspection and Enforcement personnel on July 30 - August 3, 1984. This item is closed.

4. Unresolved Items

No Unresolved Items were identified during this inspection.

5. Plant Operations

The inspector 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 Section 3.18 of the station directives. The complement of licensed personnel on each shift inspected met or exceeded the requirements of TS. 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 2 Reactor Building

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

Units 1 and 3 operated at essentially full power throughout the reporting period, February 11 - March 10, 1985.

Unit 2 operated at 85-90% power until February 21 when it was shut down for refueling. The generator was taken off line at 5:43 a.m., after completing a continuous power production run of 439 days, 8 hours, and 28 minutes. The shutdown is scheduled to last 59 days.

2B1 reactor coolant pump has been removed for inspection and maintenance, the high pressure turbine disassembled for preventive maintenance, and the turbine stop valves disassembled for rework. Approximately 500 valves on Unit 2 will receive maintenance work on the current shutdown. As of March 8, 2109 steam generator tubes have been inspected, 1627 have been analyzed, and only one tube required to be plugged has been 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 system restoration was completed.

Surveillances witnessed in whole or in part:

- a. WR55355A - ES System Logic Subsystem 1, HPI and RB Isolation Channel 1 On Line Test, Unit 3
- b. WR55359A - ES System Logic Subsystem 2, HPI and RB Isolation Channel 2 On Line Test, Unit 3
- c. PT/1/A/0204/07 - Reactor Building Spray System Performance Test, Unit 1
- d. PT/2/A/0150/06 - Leak Rate Test of Penetration 5b, Containment Isolation Valves 2RC-164, 2RC-165

Completed surveillances reviewed included the following:

- a. WR55888A - Calibration of Reactor Building Hydrogen Sampling System - Train A
- b. WR59020B - Monthly PM on Keowee Generator No. 2
- c. WR55128A - Control Battery Test on ICA and ICB Batteries
- d. WR56160 - Preventive Maintenance on Fire Protection Equipment
- e. WR56160 - Functional Test of MDEFWP Initiation Pressure Switches
- f. WR55968A - Test of Standby Shutdown Facility 125 VDC Batteries
- g. WR55019A - LPI Flow Instrument Calibration

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 inspected in progress included:

- a. WR54280C - Valve Disassembly, Inspection, Repair and Reassembly, 2MS-102, Main Steam Stop Valve
- b. WR54289C - Valve Disassembly, Inspection, Repair and Reassembly, 2MS-103
- c. WR54290C - Valve Disassembly, Inspection, Repair and Reassembly, 2MS-109
- d. WR54291C - Valve Disassembly, Inspection, Repair and Reassembly, 2MS-105
- e. WR57856B - Preventive Maintenance on 4160 Volt Switchgear 2TC-10, RB Spray Pump
- f. WR57847B - PM on 4160 Volt Switchgear 2TC-1, Incoming Feeder Breaker
- g. WR57873B - PM on 4160 Volt Switchgear 2TC-11, RB Spray Pump
- h. MP/1&2/A/1140/01 - Control Rod Drive Shim Drive, Lead Screw Uncoupling, Unit 2

Completed maintenance work requests reviewed included the following:

- a. WR18532B - Repair or Replace Control Rod Drive Trip Breaker CB-3. Failed to Meet Trip Time of 80 Milliseconds
- b. WR58299B - Repair Keowee Generator No. 2 Field and Stator Coolers
- c. WR18182B - Repair RPS Channel A Flow Transmitter
- d. WR18124B - Investigate and Correct Cause of 3CB Battery Charger Low Amperage
- e. WR18350B - Inspect and Repair IC Low Pressure Injection Pump Discharge Flange Plug Leaks
- f. WR18194B - Investigate and Repair ES Channel B Power Supply Erratic Behavior

8. Change In Engineered Safety Feature Setpoint

The TS licensing basis for depressurization of the reactor due to a small break LOCA is 1350 psig. A Babcock and Wilcox (B&W) analysis in 1983 resulted in a letter of August 19, 1983, to Duke Power Company (DPC) which gave a new value of 1465 psig as the possible minimum rapid depressurization level for a small break LOCA.

The Oconee setpoint for engineered safety feature actuation (ESFAS) at that time was 1550 psig; TSs require a setpoint equal to or greater than 1500 psig. As a result of the B&W letter, DPC calculated the possible instrument error and arrived at a value of 56 psig. This assured ESF actuation should RCS pressure drop to 1494 psig, which provided a pad of 29 psig relative to the calculated pressure of 1465 psig.

A B&W letter to DPC of September 5, 1984, stated that additional analysis revealed that the immediate depressurization due to a small break LOCA would be to 1480 psig and suggested that instrument error might be as high as 100 to 125 psig. The Oconee setpoint of 1550 psig and the calculated instrument error of 56 psig still assured ESF actuation at 1494 psig; therefore, no action was taken.

In January and February of 1985, DPC stated that, in an unrelated exercise, they recalculated possible instrument error on several systems using a different method from that employed in the past. These calculations revealed a possible instrument error of 120 psi. This value, added to the SB LOCA depressurization value of 1480 psig, required an ESFAS of 1600 psig.

On February 22, the Oconee ESFAS setpoints were changed to 1600 psig and the NRC operations duty officer was notified. DPC will notify NRR by Special Letter Report. Change of the setpoint was in the conservative direction; therefore, DPC did not consider this to be an unreviewed safety question.

No violations or deviations were identified.

9. Improper Packaging For Shipment - Low Specific Activity Material

A steel box containing contaminated spent fuel pool diving equipment was received at Oconee Nuclear Station (ONS) from McGuire Nuclear Station (MNS) on February 28, 1985. The box and equipment, reportedly having been unopened at ONS, were returned to MNS via company truck approximately 18 hours later on March 1, 1985. Enroute to MNS, the box cover blew off on a public highway and the loss was not detected immediately.

The truck stopped for gas approximately 20 miles from the site and there the driver discovered the loss. He immediately called ONS and personnel were dispatched with survey equipment, another box top, and other equipment which might be needed. Enroute to the filling station, they found the lost box lid approximately one mile from ONS along route SC 130. They surveyed the box lid and surrounding area and found no detectable contamination. The swipes were later checked at ONS and the findings were confirmed.

At the filling station, the team found the box contents intact, bagged in plastic and retained by internal clamps. They surveyed the box and truck and found no loose contamination. They installed the new cover and dispatched the truck to MNS after instructing the driver to stop periodically and verify the security of the cover.

The resident inspectors reviewed the incident reports and the procedures in use for the box shipment. ONS personnel had based the shipping papers of the box contents on the shipping papers from MNS. The truck and box had been surveyed externally before release, and the box had been properly secured to the truck.

The box in use is of 14 gauge steel and is approximately 4 feet by 6 feet and 4 feet high. The lid is secured by 14 clamps which are driven into retainers on the side of the box. On leaving ONS, the lid reportedly was secured by only six clamps. The team which was sent to the truck reported that the clamps were still in place with the lid retaining portion bent upward. The residents noted that the damaged lid was bent upward at the corners. Apparently, high velocity air and vibration generated by the moving uncovered truck had caused the failure.

10 CFR 71.5(a) requires a licensee to comply with the requirements of 49 CFR 173.425(b) when transporting Low Specific Activity (LSA) radioactive material. One requirement for the transport of LSA radioactive materials is that the materials must be packaged in strong tight packages so that there will be no leakage of radioactive material under conditions normally incident to transportation. Additionally, 49 CFR 173.475(c) and (f) requires the to assure that each closure device and openings are properly secured. Failure to meet the strong tight package requirement when the top of the box came off during transport is a violation of 10 CFR 71.5(a), 49 CFR 173.425(b), 49 CFR 173.475(c) and (f). (Violation 50-269/85-03-01, Failure To Meet Strong Tight Package Requirement During Transport.)

10. Control Of Installed Test Instrumentation

The resident inspectors examined the licensee's mechanism for assuring the accuracy of installed instrumentation used to determine the operability of safety related systems and components. At present, Ocone does not have in place a station directive describing a program which assures the validity of surveillances when installed instruments are used. However, the inspection disclosed a controlled, working system in which the validity of tests in which installed instruments are used is assured.

Calibration by I&E of installed instruments is scheduled and computer controlled. Calibration results are sent to the performance group. Also, Performance is notified immediately of installed instrumentation which is found out of calibration. These records are maintained on file by Performance and used to verify calibration of instruments used in surveillance tests. Surveillance tests require test personnel to document that instruments used have met calibration requirements. Any instruments found out of tolerance by I&E are evaluated by Performance supervision upon receipt of the I&E results. All surveillance tests performed with the out of tolerance instruments are reviewed to determine their acceptability. Performance tests are redone if validity is questionable.

Several gauges and transmitters in each of several safety related systems were chosen by the residents and records inspected to determine if the above described system is working. There were no deviations noted. Examples of

tests were found in which subsequent calibration demonstrated that results were questionable. In each case, the situation was handled properly.

The licensee has committed to having a station directive in place by April 15, 1985, describing control of installed instrumentation and verification of test results. This will be an Inspector Followup Item, IFI 50-269/85-03-02 (Installed Instrumentation).

No violations or deviations were identified.

11. Functional Testing After Maintenance

During Inspection No. 50-269/85-02, a regional inspector noted a completed maintenance work request which specified that a performance test would be required subsequent to maintenance work. The work request had been completed, but there was no indication that the performance test had been made. The inspector left this as an unresolved item pending examination of additional tests during a subsequent inspection or for the resident inspectors to determine if tests were being performed as required.

Subsequent to the inspection, at random, the licensee picked 50 mechanical and electrical work requests which required testing after completion of work but had no notation of completion of testing on the work request.

A review of equipment records determined that in 49 of the 50 cases, the test was performed after work completion and test records are on file. The work request for which no test was performed had been signed off by a supervisor as having no performance test required.

Records of the licensee's review have been examined by the resident inspectors and the results were discussed with the regional inspector. With his concurrence, the unresolved item is closed.

No violations or deviations were identified.

12. Main Steam Relief Valves

Delayed reseating of main steam relief valves (MSRVs) has been a topic of recent Oconee resident inspector reports. During the current Unit 2 shutdown, MSRV 16 has been removed and will be rebuilt. A Crosby Valve representative has been called in to inspect the valve and will be onsite the week of March 10. It is the DPC intent to pull three additional Unit 2 MSRVs for rework.

The licensee has also stated the intent to pull four MSRVs for rework on each unit during refueling outages until all have been reworked.

13. Licensee Event Reports

Resident or regional inspectors reviewed the following Licensee Event Reports and Construction Deficiency Reports to verify that the reports adequately described the events; that licensee action determined the cause; and that adequate corrective action was proposed and taken. Changes to directives, procedures, and training programs were reviewed and physical changes to the plant inspected where appropriate.

Unit 1 - DN 50-269

Closed: CDR 83-17 - Seals at Conduit Connections

Closed: LER 83-11 - Lock-out Indication Received - Cause Unknown. Licensee examinations completed; no further difficulties experienced.

Closed: LER 83-13 - Broken Hold-Down Springs. Licensee evaluation completed.

Closed: LER 83-16 - Damage to Hydrogen Purge Unit. Connections to HPU have been relocated in Unit 1 BWST area and a concrete pad installed for the HPU.

Unit 2 - DN 50-270

Closed: CDR 83-04 - Inoperable Valve

Unit 3 - DN 50-287

Closed: CDR 83-07 - Containment Isolation Valves

Closed: CDR 83-13 - Containment Isolation Valve Leakage

14. Closeout Of Outstanding Items

Responses to IE Bulletins were reviewed in the regional office and, where appropriate, inspected at the site. The following bulletins have been resolved.

Closed: 50-269,270,287/83-BU-04, Failure of Undervoltage Trip

Closed: 50-269,270/83-BU-08, Circuit Breakers With Undervoltage Trips Used In Other Than Reactor Trip System

The following Inspector Followup Items were reviewed and are being closed out.

Closed: 50-269/IFI 82-25-04: Review of QA Audits. QA Audits have been reviewed by resident and regional inspectors since this item was opened. This item is closed.

Closed: 50-269/IFI 83-06-02: Keowee Woodward Governor System. There is an outstanding LER concerning this item; therefore, the IFI is closed.

Closed: 50-269/IFI 83-20-01: Failure to Follow Weld Procedure. This item was closed for Unit 2 in Report No. 270/84-26. It should have been closed for Unit 1 also.

15. Enforcement Conference

An Enforcement Conference was held at Region II's request in the NRC Region II Office on March 26, 1985, to discuss the radioactive shipment event at the Oconee Nuclear Station. The following personnel were in attendance:

a. Duke Power Company

- G. E. Vaughn, General Manager - Nuclear Stations
- M. D. McIntosh, General Manager - Nuclear Support
- M. S. Tuckman, Manager, Oconee Nuclear Station
- T. L. McConnel, Manager, McGuire Nuclear Station
- E. O. McCraw, Compliance Engineer - McGuire
- G. W. Cage, Superintendent of Operations - McGuire
- N. A. Rutherford, System Engineer, Licensing
- D. J. Rains, Superintendent of Maintenance
- T. P. Harrall, Design Engineer
- T. E. Carroll, HP Supervisor, Oconee Nuclear Station

Nuclear Regulatory Commission

- J. Nelson Grace, Regional Administrator
- R. D. Walker, Director, Division of Reactor Projects (DRP)
- V. L. Brownlee, Chief, Branch 2, DRP
- P. R. Bemis, Director, Division of Reactor Safety
- J. M. Puckett, Director, Enforcement and Investigation
- Coordination Staff
- H. C. Dance, Section Chief, Division of Reactor Projects
- J. C. Bryant, Senior Resident Inspector, Oconee
- W. T. Orders, Senior Resident Inspector, McGuire
- G. R. Jenkins, Section Chief, Division of Radiation Safety and Safeguards
- M. Chinamal, AEOD
- H. Nicolaras, Oconee Project Manager/NRR
- M. K. Sasser, Oconee Resident Inspector
- C. W. Burger, Project Engineer, DRP

b. Event Discussion

The NRC staff opened the discussions concerning the Low Specific Activity (LSA) radioactive shipment with the Region II perception of the potential seriousness of the event. Duke Power Company (DPC) provided a description of the sequence of events and corrective action. The meeting summary notes are described below. The event details are discussed in item 9 of this report.

(1) Sequence of Events

DPC described the sequence of events on February 28, 1985, when a steel box containing contaminated spent fuel pool diving equipment was received at Oconee Nuclear Station (ONS) from McGuire Nuclear Station (MNS). The box was being returned to MNS via a DPC truck approximately 18-hours later on March 1, 1985, when the box cover blew off while traveling on a public highway.

(2) DPC Corrective Action

- DPC will band the boxes on future shipments.
- DPC will use modified clamps to hold the box cover.
- DPC will stress the importance of insuring compliance with regulations and procedures for future shipments.

(3) Summary and Comments

The NRC expressed concern that the box cover was secured with only 6 clamps during this shipment when there are provisions for 14 clamps.

DPC stated that the low specific activity (19 mCi) of the radioactive shipment should be considered as well as their record of radioactive shipments (900 shipments as of January 1982 with only 2 violations).