



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
230 PEACHTREE STREET, N.W. SUITE 1217
ATLANTA, GEORGIA 30303

Report Nos.: 50-269/77-20; 50-270/77-20; 50-287/77-20

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

License Nos.: DPR-38; DPR-47; DPR-55

Licensee: Duke Power Company
422 South Church Street
Charlotte, North Carolina 28242

Facility Name: Oconee Units 1, 2 and 3

Inspection at: Oconee site, Seneca, South Carolina

Inspection conducted: August 30 - September 2, 1977

Inspector: C. E. Alderson

Reviewed by: R. C. Lewis
R. C. Lewis, Chief
Reactor Projects Section No. 2
Reactor Operations and Nuclear Support Branch

10/3/77
Date

Inspection Summary

Inspection on August 30 - September 2, 1977: (Report No. 50-269/77-20, 50-270/77-20, 50-287/77-20)

Areas Inspected: Routine, unannounced inspection of maintenance activities including maintenance during refueling of Units 1 and 2; review of plant operations during refueling and startup following refueling of Unit 2; followup of power oscillations on Unit 3; and followup of event reported to inspector onsite. The inspection involved thirty-five inspector-hours on site by one NRC inspector.

Results: Of the eight areas inspected, no items of noncompliance were found in seven areas and one item of noncompliance was found in one area (infraction - failure to follow procedures - Details I, paragraph 5.a)

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DETAILS I

Prepared by:

Carl E. Alderson

Carl E. Alderson, Reactor Inspector
Reactor Projects Section No. 2
Reactor Operations and Nuclear Support
Branch

10/3/77
Date

Dates of Inspection: August 30 - September 2, 1977

Reviewed by:

R. C. Lewis

R. C. Lewis, Chief
Reactor Projects Section No. 2
Reactor Operations and Nuclear Support
Branch

10/3/77
Date

1. Individuals Contacted

- *J. E. Smith, Station Manager
- *O. Bradham, Superintendent of Maintenance
- *N. Pope, Superintendent of Operations
- *R. Koehler, Superintendent of Technical Services
- *R. Bond, Technical Services Engineer
- J. Dunlop, Associate QA Engineer
- S. Pryor, Assistant Shift Supervisor
- W. Martin, Assistant Engineer
- R. Knoerr, Assistant Engineer
- B. Moore, Operating Engineer
- C. Yongue, Health Physics Supervisor
- D. Lanning, Maintenance Supervisor
- W. Holcombe, Maintenance Supervisor
- R. Adams, Maintenance Engineer (I&E)
- P. Fant, Junior QA Engineer
- D. Welch, Babcock and Wilcox Site Representative
- R. Nelson, Babcock and Wilcox Site QC Supervisor

*Denotes persons who attended the exit interview

2. Licensee Action on Previous Inspection Findings

Not inspected.

3. Unresolved Items

No new unresolved items were identified during this inspection.

4. Exit Interview

A meeting was held with licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on September 2, 1977. The inspector described the scope and findings of the inspection. Licensee representatives acknowledged the inspector's comments regarding the noncompliance (Paragraph 5.a) and the problem of documentation (Paragraph 5.b); however, no commitments regarding specific corrective action were made.

5. Maintenance

The inspector reviewed documentation associated with maintenance activities on all three units during the last fifteen months. The twenty-one maintenance jobs selected for review included three jobs completed on Unit 2 during its recent refueling outage and three jobs which were in progress on Unit 1 which was in a refueling outage at the time of the inspection. Documentation reviewed included operating logs, work requests, quality control inspection records and completed maintenance and periodic testing procedures. The purpose of the review was to verify that: (1) necessary review and approval was received prior to initiating work; (2) limiting conditions for operation were satisfied; and (3) that the work was performed, inspected and tested by qualified personnel utilizing approved procedures.

Within the areas inspected, the following discrepancies were identified:

- a. The inspector found several completed maintenance procedures in which a significant number of steps had been marked as not applicable ("N/A") by the craftsmen performing the work. In some cases one step out of a whole page would be initialed as being completed while the rest of the procedural steps on the page would be marked N/A. Specific examples include the following:

MP/O/A/1200/3 - used to repair valve 1LP-18 on Unit 1 under Work Request (WR) 19422, dated 1/13/77.

MP/O/A/1200/2 - used to disconnect and rotate the motor operator for 1LP-18 on Unit 1 under WR 19636 dated 1/18/77.

MP/O/A/2001/3 - used to repair breaker to emergency power bus on Unit 2 under WR 23243 dated 6/14/77.

MP/O/A/1300/2 - used to repair the 3A Low Pressure Injection (LPI) pump on Unit 3 under WR 17774A dated 6/14/77.

MP/O/A/1300/2 - used to repair the 3A LPI pump on Unit 3 under WR 23513 dated 6/24/77.

The inspector stated that in these cases the procedures and their use did not meet the intent of Technical Specification 6.4.1 which requires in part that maintenance be performed in accordance with written procedures. The inspector further stated that the manner in which the procedures were being used amounted to giving the craftsmen a lot of detailed guidance from which he can generate his own procedure by selecting whatever steps he deems necessary. This is an infraction.

- b. The inspector identified several instances where the available documentation for a given maintenance job was inadequate to determine whether the job was properly approved, performed and inspected. Discussions with licensee personnel and review of additional documents provided sufficient information to establish that the jobs were accomplished correctly and that the problem was the result of careless documentation and/or procedural formats which made it difficult to determine the date on which portions of the procedure were completed. The inspector stated that the intent of the Technical Specification requirement to maintain records was that such records be self-sufficient; that is, that they contain sufficient information to allow reconstruction of the sequence of events associated with the activity without having to obtain additional information at a later date from the individuals who performed the activity. The licensee agreed with the inspector's remarks and stated that licensee personnel would be cautioned to be more careful in documenting their activities and the dates performed.

6. Plant Operations - Unit 2 Refueling Outage

The inspector reviewed operating logs, completed operating, periodic test and special test procedures, and maintenance documents to verify that required surveillance testing was performed during refueling, that systems or components disturbed

during the outage were properly returned to service and functionally tested when appropriate, and that approved operating and startup testing procedures were available and used during the startup following refueling. At the time of the inspection, Unit 2 startup had progressed to the 75% power plateau and the required testing was being performed.

Within the areas inspected, no items of noncompliance or deviations were identified.

7. Plant Operations - Unit 1 Refueling Outage

The inspector reviewed the schedule of activities for the Unit 1 refueling outage, and maintenance documents for work planned or in progress. The controlling procedure for unit startup and selected system startup procedures were also reviewed. The purpose of these reviews was to verify that the licensee's schedule and/or maintenance procedures would include any required functional testing of those systems disturbed during the refueling outage. No items of noncompliance or deviations were identified.

8. Unit 3 Power Oscillations

A review of the licensee's actions to identify the cause of the Unit 3 power oscillations and to determine appropriate corrective actions was initiated and documented in IE Inspection Rpt. No. 50-287/77-14. The review was continued during this inspection and included discussions with licensee personnel and review of licensee memoranda and logs which describe the testing performed to date. The inspector determined that the testing performed was accomplished on an informal basis and primarily involved placing various equipment controllers in the manual mode to determine whether the oscillations could be attributed to the automatic control systems. The results of these tests were essentially inconclusive and the licensee is developing plans for additional testing. The licensee stated that further testing would be postponed until after refueling of Unit 3 (currently scheduled for October) because of the large volume of waste water which would be generated as a result of changing boron concentration with the present core conditions.

The inspector observed a portion of a shutdown of Unit 3 which occurred during the inspection. The nuclear power range recorder indicated power oscillations of approximately six percent peak-to-peak between 80 and 92 percent of rated power, and four percent peak-to-peak between 60 to 80 percent of rated power. This represents little or no change from the oscillations observed by the inspector on July 8, 1977.

The inspector discussed the need for a formal detailed and comprehensive test program with licensee personnel and stated that this matter would be reviewed during future inspections.

9. High Exposure of Vendor Employees' Film Badges

A licensee representative notified the inspector on August 30, 1977, that the licensee had been informed by Todd Shipyards, Galveston, Texas that film badges worn by Todd employees working at Oconee had indications of exposures to high energy gamma radiation ranging from 1.3R to 55R. The licensee also informed the inspector that Todd employees had stated that additional film badges brought from Galveston, Texas, but not actually taken to the Oconee site had been processed and indicated exposures up to 100R. It was stated that Todd Shipyards believed the exposures occurred between August 8 and August 19, 1977. The inspector obtained the names of Todd employees who had worked at the Oconee site between July 30 and August 30, 1977, and reviewed the Oconee daily dose cards for each of these employees during this period. Dose information on these cards is entered by the individual worker based on self-reading dosimeters. Based on these dose cards, the highest exposure received by a Todd employee at the Oconee site for the entire period was approximately 2.325R which is within Regulatory limits. The licensee had also processed the Oconee thermoluminescent dosimeters (TLD) worn by these individuals and the maximum exposure indicated was 2.85 rem (2.71 rem gamma and 140 mrem beta). A comparison between the daily dose card information and the TLD information showed close agreement and it does not appear that the exposures indicated by the Todd film badges occurred at the Oconee site. Additional information on this subject is contained in Details II of this report.

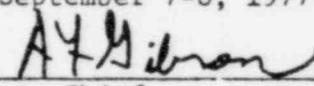
DETAILS II

Prepared by: 

S. C. Ewald, Radiation Specialist
 Radiation Support Section
 Fuel Facility and Materials Safety Branch

9/30/77
 Date

Dates of Inspection: September 7-8, 1977

Reviewed by: 

A. F. Gibson, Chief
 Radiation Support Section
 Fuel Facility and Materials Safety Branch

9/30/77
 Date

1. Individuals Contacted By Telephone

- C. Winters, Radiation Safety Officer, Todd Shipyards
- G. McDonald, Laboratory Supervisor, Landauer, Inc.
- G. D. Brown, Chief, Fuel Facility and Materials Safety, Region IV
- J. J. Ward, Investigation Specialist, Region IV
- H. G. Shealy, Director, Division Radiological Health, State of South Carolina
- D. Ebenhack, Health Physicist, South Carolina
- A. Semanis, Radiological Health Unit, State of Georgia

2. High Film Badge Exposures of Vendor Employees (PNO-77-152)

Region II inspection efforts, summarized below, were conducted in office unless otherwise indicated.

- a. Film badge dosimeters provided and used by contract workers from Todd Shipyards, Galveston Texas at the Oconee site indicated high energy gamma exposures ranging up to 55 rems. The exposures apparently occurred between August 12, 1977 and August 19, 1977. Extra film packets which were not issued indicated exposures ranging from 15 rem to 100 rem. Todd Shipyards notified Oconee, the USNRC-Region IV and the States of Texas and South Carolina. Review of and inquiry into this matter by the States of South Carolina, Texas and Georgia, as well as Region II, Region III and Region IV are summarized below.
- b. A Region II inspector on site at Oconee (ref: Details I, paragraph 9) examined records and results of dosimetry provided the Todd employees by Oconee to account for occupational exposures on site. This review indicated that the film doses did not occur at the Oconee site. Region II staff in Atlanta served as a clearing house for information gathered by the various agencies involved and aided in the coordination of the various inspection activities.

- c. The State of South Carolina dispatched personnel to Clemson South Carolina to investigate the possibility of the high exposure occurring in the Todd workers motel room. It was revealed that a radiographer from Ohio was registered at the same motel during the period in question. Region III communications with the radiographers home office and an interview of the radiographer by South Carolina representatives, determined that the radiographer did not have a source at the motel and thus the exposures did not occur as the result of activities by this radiographer. The State of South Carolina inquiry included a survey of the Todd workers motel with negative results.
- d. The State of Texas, with accompanying Region IV inspectors, visited Todd Shipyards as part of their review of this matter. This review indicated the exposures did not occur in the State of Texas. A review of film badge records indicated the exposure did not occur in transit between Galveston, Texas and Oconee. The State of Georgia, with accompanying Region II personnel, conducted a survey of rental car used by Todd employees to drive from Atlanta to Oconee. The survey results were negative supporting the conclusion that no real exposure occurred in transit. Discussion between Todd employees, Region IV inspectors and State of Texas personnel revealed the film packets indicating high exposure were left under the rear window of a rental car for two or more days. The State of Texas and Todd Shipyard personnel are discussing the advisability of conducting medical tests on one of the individuals involved to determine whether any personnel exposure is indicated.
- e. Communications with Landauer Inc. (The film badge vendor), both from Todd Shipyards and Region II staff, indicated the high exposures resulted from high energy gamma radiation. Region III inspectors visited Landauer Inc. and inspected the film for possible defects with negative results. A Landauer representative when questioned by the inspectors about the effects of heat on film stated the observed film effect could very likely have resulted from exposure to temperatures in the range of 120°F to 200°F. It is noted that temperatures in this range may be attained in a closed car that is parked in the sun.
- f. Efforts by the NRC inspectors from Region II and Region IV with personnel representing the states of South Carolina, Georgia and Texas revealed no sources of ionizing radiation commensurate with the indicated exposures off the Oconee site. Duplicate dosimetry provided by Oconee indicates the high exposures did not occur on site. These negative results in conjunction with storage of the film in an automobile support the conclusion that the film effects likely occurred from heat fogging and not from ionizing radiation.