UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

Report Nos. 50-269/81-01, 50-270/81-01, and 50-287/81-01

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 at Oconee site near Seneca, South Carolina

Inspector: J. J. Lenahan — Date Signed: 2/5/81

Approved by: T. E. Conlon, Section Chief, RC&ES Branch — Date Signed: 2/5/81

SUMMARY

Inspection on January 6-9, 1981

Areas Inspected

This special, announced inspection involved 27 inspector-hours on site in the areas of follow up on IE Bulletin 80-11, structural concrete QA/QC controls and quality [illegible]s for the standby shutdown facility, and the Units 1-3 reactor buildings [illegible]don surveillance program.

Results

Of the three areas inspected, no violations or deviations were identified in two areas; one violation was found in one area (Inadequate procedure for identification of masonry walls - paragraph 7).

DETAILS

1. Persons Contacted

Licensee Employees

*J. E. Smith, Station Manager
*T. C. Mathews, Licensing Technical Specialist
P. Earnheardt, Technical Specialist
D. Kulla, Design Engineer, Engineering Design
J. M. McConaghy, Assistant Design Engineer, Engineering Design
R. Burton, Senior Laboratory Technician, Jocassee Materials Lab
R. J. Brackett, Station Senior QA Engineer
*B. R. Justice, QA Engineer
*R. T. Bond, Licensing and Projects Engineer
*G. E. Rothenberger, Mechanical Maintenance, Supervisor
A. Barr, Performance Test Section Supervisor
R. B. Priory, Principal Engineer, Engineering Design (Telephone conversation)

Other Organizations

J. Campbell, Mechanical Engineering Technician, Babcock & Wilcox
NRC Resident Inspector

F. Jape
D. Myers
*W. T. Orders

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on January 9, 1980 with those persons indicated in Paragraph 1 above. The violation described in paragraph 7 was discussed.

3. Licensee Action on Previous Inspection Findings

Not inspected.

4. Unresolved Items

Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve noncompliance or deviations. New unresolved items identified during this inspection are discussed in paragraph 5.

5. Independent Inspector Effort

a. The inspector examined the materials testing laboratory at Jocassee Dam. This laboratory is used for testing of soils and concrete materials from Oconee and several other nuclear projects. The inspector examined the currentness of calibration of the laboratory testing equipment, reviewed soil testing and laboratory equipment calibration procedures, and discussed the procedures with the senior laboratory technician.

b. The inspector examined procedure numbers PT1A 0150-14, PT2A 0150-14, and PT3A 0150-14, "Reactor Building Tendon Surveillance" to determine if the procedures complied with the requirements of Technical Specification 4.4.2. These procedures specify the requirements for inspection and testing of the containment building post-tensioning systems for Units 1, 2, and 3, respectively.

The inspector reviewed the following tendon inspection records:

(1) Results of Unit 1 tendon surveillance inspection performed from June 28, 1977 through December 28, 1977

(2) Results of Unit 2 tendon surveillance inspection performed from July 8, 1977 through June 16, 1978

(3) Results of Unit 3 tendon surveillance inspection performed from July 26, 1977 through May 10, 1979

Review of the above procedures and reports disclosed the following unresolved item:

The method of calibrating the stressing rams used to measure the liftoff force in the tendon during the surveillance inspections is questionable. The force delivered by the rams was determined by multiplying the theoretical ram area by the pressure in the ram's hydraulic fluid. (The pressure in the ram's hydraulic fluid was measured using calibrated pressure gauges). However, there was no testing performed to verify that the actual force delivered by the stressing rams is equal to the product of the theoretical ram area and the ram's hydraulic fluid pressure. This appears to be in conflict with industry standards (ASTM Standard Test Method E-4) and the requirements of 10 CFR 50, Appendix B, Criterion XII. This was identified to the licensee as Unresolved Item 269/81-01-01, 270/81-01-01, and 287/81-01-01, "Calibration of Stressing Rams" pending further review by NRC Region II.

No violations or deviations were identified.

6. Structural Concrete QA/QC Controls and Quality Records for the Standby Shutdown Facility

a. Structural Concrete QA/QC Controls

The inspector examined the following procedures and specifications:

(1) Procedure QCC-1 "Inspection of QA Condition Concrete"

(2) Specification number OS-160-1 "Specification for the Procurement of Concrete for Nuclear Safety Related Structure"

(3) Specification number OS-160-02 "Specification for Receiving and Placing Concrete for Nuclear Safety Related Structures

(4) Concrete Surface Defect Repair Procedure

Acceptance criteria examined by the inspector appear in Section 17 of the DPC Topical Report, Duke 1-A.

b. Structural Concrete Quality Records

The inspector reviewed the following quality records:

(1) Batch plant scale calibration records for scale calibration performed on 12/10/80

(2) Results of mixer efficiency tests performed on concrete truck mixer numbers 68 and 79 on 12/4/80.

(3) Prepour inspection records, concrete batch tickets, concrete batch plant inspection records, and concrete test data (air, slump, unconfined compression tests)for pour numbers M-4, M-6, M-13, M-14, W-1E, W-2E, W-2F, W-4G2, W-5D, and W-6E

(4) Concrete curing records for pour numbers W-1B, W-1C, W-2D, W-2D-1, W-3D, W-3E, W-3F, W-4D, W-5D, W-6D, W-6E and W-6F

(5) Results of ASTM C-33 testing, (LA Abrasion, soundness, reactivity, and flat and elongated particles) performed on coarse aggregates sampled in April, 1980

(6) Nonconformance report numbers NCI-430, NCI-443, NCI-356, and NCI-369.

(7) Concrete mix designs C-1 and A-2

Acceptance criteria examined by the inspector were those procedures listed in paragraph 6.a.

No violations or deviations were identified.

7. (Open) IE Bulletin 80-11, Masonry Wall Design - Units 1, 2, and 3

a. Summary of Licensee's Response to IE Bulletin 80-11

Duke Power Company submitted its 60 day IE Bulletin 80-11 response to NRC Region II for Oconee Units 1-3 in a report attached to a letter dated July 7, 1980. The report contained a listing of the masonry walls, their re-evaluation priority, and a preliminary schedule for completing the design re-evaluation.

In a letter dated October 28, 1980, Duke requested an extension of the deadline for completion of the IEB 80-11 design re-evaluation from November 8, 1980, to the end of December, 1981. Duke submitted a partial response to IEB 80-11 to NRC Region II in a report attached to a letter dated November 8, 1980. This report discusses the function of the masonry walls, the construction practices employed in construction of the walls, and criteria used in the design re-evaluation. The report states that the re-evaluation has been completed for 146 of 172 Priority I walls.

b. Review of Procedures for Accomplishment of IE Bulletin 80-11 Requirements

The inspector examined the following procedures which address the requirements for accomplishment of IEB 80-11 field inspection activities:

(1) Masonry wall Inspection Procedure for USNRC Bulletin No. 80-11

(2) IE Bulletin 80-11 Masonry Walls - Inspection Training Program

(3) Training Outline and Inspection Guide for Electrical Personnel for IE Bulletin 80-11

(4) IE Bulletin 80-11 Surveillance - Summary of Guidelines for Mechanical Team Members

During review of the above procedure, the inspector noted that the procedures referred to identification and documentation of designated walls only. Discussions with licensee engineers disclosed that the designated walls were initially identified during a review of "as-built" drawing in the Duke Design offices in Charlotte. After a wall was identified during the "as-built" drawing review, a field check was made to determine if any safety-related equipment was in its proximity. The field inspection procedures did not require inspection of building areas to locate masonry walls which were not identified during the Charlotte "as-built" drawing review. During the field walkdown performed by the inspector (discussed in paragraph 7c of this report), the inspector located a group of walls in column grid H-J,

25-26 on elevation 775 of the turbine building which had not been identified by licensee engineers during their field inspection.

The lack of a procedural requirement to inspect all areas for the presence of masonry walls and determine if there was safety related equipment in the proximity of the walls identified during the field inspection was identified to the licensee as Violation Item 269/81-01-02. 270/81-01-02, and 287/81-01-02, "Inadequate Procedure for Identification of Masonry Walls". This is a violation of criterion V of 10 CFR 50, Appendix B in that the procedure did not contain appropriate instructions to accomplish the field identification of masonry walls which may have safety related equipment in their proximity.

c. Field Walkdown in Safety-Related Areas To Identify Masonry Walls.

The inspector, accompanied by licensee engineers, walked down the following areas to verify that all masonry walls in the proximity of safety-related equipment had been identified for design re-analysis in accordance with IEB 80-11 requirements:

(1) Auxiliary building, elevations 809-3 and 822, and portions of elevation 796-6 and 783-9

(2) The block house

(3) Keowee Hydro Station

(4) Turbine building, elevation 775, 796-6, and 822

As discussed in paragraph 7b, the inspector located a group of walls in column gri , 25-26 on elevation 775 of the turbine building which had not been identified by the licensee. Since these walls had not been previously identified, no determination had been made as to whether or not there was any safety related equipment in their proximity.

d. Review of Quality Records Related to IE Bulletin 80-11

The inspector examined the following quality records relating to IE Bulletin 80-11:

(1) Drawing numbers O-15, O-18A, O-303G, O-304A, O-304B, O-305A, O-305B, O-306A, O-306B, O-308A, O-308B, O-364, O-384, O-1013, O-1015, O-2304A, O-2304B, O-2305A, O-2305B, O-2306A, O-2306B, O-2308B, K-300A, and K-301A.

(2) Masonry wall data packages for the walls listed in the table below. These data packages were reviewed during the walkdown inspection discussed in paragraph 7c to verify the "as-built" details of the walls were accurate and that safety related equipment in their proximity was identified.

TABLE

Location	Wall numbers
Auxiliary Building Elevation 809.3	601, 603, 615, 637, 727F, 1001, 1002, 1006, 1033, 1034 and 1222
Auxiliary Building Elevation 822	1231, 1245, and 1400
Block House	1-F, 2-F, and 3-F
Keowee Hydro Station	0012, 0013, 0014, 0061, and 0062

No deviations were identified.