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

Report Nos. 50-269/79-22, 50-270/79-20, and 50-287/79-22

Licensee: Duke Power Company
422 South Church Street
Charlotte, North Carolina 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 Design Office, Charlotte, North Carolina and Oconee Nuclear Station near Seneca, South Carolina

Inspector: W. P. Ang — 9-7-79
W. P. Ang — Date Signed

Approved by: A. R. Herdt — 9-10-79
A. R. Herdt, Section Chief, RCES Branch — Date Signed

SUMMARY

Inspection on August 20-23, 1979

Areas Inspected

This routine, unannounced inspection involved 12 inspector-hours onsite and 12 inspector-hours at the design office in the areas of concrete expansion anchor work activities and records.

Results

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

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DETAILS

1. Persons Contacted

Licensee Employees

At the Design Office

*J. R. Wells, Corporate QA Manager
*S. B. Hager, Chief Civil Engineer
*R. B. Priory, Principal Engineer
*R. M. Sandifer, Senior Engineer
*D. H. Stout, Assistant Design Engineer

At the Site

*E. Smith, Plant Manager
*J. Davis, Maintenance Superintendent
*G. Rothenberger, Mechanical Engineer

NRC Resident Inspector

*F. Jape

*Attended exit interview.

2. Exit Interview

The inspection scope and findings were summarized on August 21, 1979 at the Design Offices and on August 23, 1979 at Oconee Nuclear Station with those persons indicated in Paragraph 1 above. Inspector concerns regarding licensee compliance with IE Bulletin 79-02 requirements were discussed with the licensee both at the Duke Power Company (DPC) design office and at the site.

3. Licensee Action on Previous Inspection Findings

(Closed) Infraction 287/79-16-01: Inadequate pipe support repair procedures. Repair instructions and sketches for pipe supports 51A-H102, 51A-H50G and 51A-0-1479E-H47G were inspected and verified to contain adequate instructions to correct the item of noncompliance. Procedure changes to prevent recurrence of the item of noncompliance were also verified.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Concrete Expansion Anchor Work Activities and Records

A. An inspection of DPC work activities and records was conducted at the design offices in Charlotte, North Carolina. The inspection was

performed to verify compliance with IE Bulletin 79-02 requirements in the following areas:

1. Engineering evaluation and resolution of discrepancies noted by on-site inspection and testing.

2. Interpretation and implementation of Teledyne test results.

3. Implementation of IE Bulletin 79-02, Rev. 1, Supplement 1 requirements and engineering evaluations of DPC reported main feedwater support safety factors.

4. DPC resolution of reported OBE versus DBE load usage discrepancies.

For items (1) and (2) above, the Unit 3 restraints/supports listed below were selected. Inspection records and base plate flexibiity calculations were inspected.

a. 14B-H42A

b. 14B-R102

c. 14B-SR21

d. WM-14B-2006 (No baseplate analysis yet at time of inspection)

e. 51B-H83

f. 56-SR101

g. 03A-H12

During the inspection of the records and subsequent discussions with engineers, the following items were identified:

1. Safety factors for four Unit 1 supports (14B-H25A, H25B, SR-27, and WF-20B-1001) had been determined to be less than 2. Applicable management personnel had not yet been advised. An evaluation of its effects on system safety and safe shutdown of the plant had not yet been initiated. Upon identification by the inspector, the above evaluation was immediately initiated. The above noted supports/restraint were all subsequently determined to be either operable (safety factor greater than 2) due to recalculation or, in the case of one support, to be of no effect to the safe shutdown of the plant. The inspector apprised the licensee of the concern that prompt action be taken on supports/restraints on operating units when safety factors of less than 2 are determined. The licensee concurred and indicated that procedural steps for prompt action had just been placed in effect and should improve the response time.

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2. The licensee intends to accept concrete expansion anchors with excessive shoulder to plug measurements if it passes a 1/4 ultimate pull test. The licensee was informed that this would only verify the capability to withstand the static design load but would not verify the safety factor as required by IE Bulletin 79-02 and would not be acceptable. The licensee indicated that they would study the condition further to determine appropriate action.

3. When oversize bolt holes had been identified, inspection of the remainder of the bolt holes in that base plate was not required and in some cases was not performed. The licensee indicated that bolt hole oversizing was only required by Rev. 1 of the Bulletin and the inspection did not have to be performed. The licensee was reminded that the inspector identified bolt hole oversizing as a parameter for verifying proper installation as required by the original issue of the bulletin and informed the licensee of this at the very start of his inspection program.

4. Some supports/restraints were being found on site for which no drawings or analysis were previously available. Calculations for these supports/restraints were being performed based on estimated loads. However, effects of these supports/restraints on the piping analysis was not being determined. The licensee indicated that these would be considered.

5. DPC had originally used OBE loads for the IE Bulletin 79-02 required base plate flexibility analysis. However, recalculations were being performed to verify safety factors for all applicable supports/restraints based on DBE loads.

6. The reanalysis of the Main Feed System trains containing 2 supports/restraints each for Units 1 and 2 was performed with the knowledge that Unit 2 hanger H52 could not be verified to be installed. The licensee was requested to either verify that the hanger is installed or to verify system operability by analyzing the applicable piping without hanger H52. The licensee subsequently verified that hanger H52 was installed.

B. An inspection of Oconee Unit 3 was performed to verify licensee compliance with IE Bulletin 79-02 requirements. The following supports/restraints were selected for the inspection:

1. 14B-H42A

2. 14B-R102

3. 14B-SR21

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4. WM-14B-2006

During inspection of the supports/restraints, review of inspection and miscellaneous repair records and subsequent discussions with engineers and auditors, the following items were identified:

1. Hanger 14B-H42A was reported to contain self drill type concrete expansion anchors during the surveillance. A subsequent inspection and test identified that the no. 1 stud and nut on the hanger could not be removed. A subsequent reinspection indicated that bolt no. 1 appears to be a sleeve anchor and bolt hole no. 3 was 1 inch in diameter. A third inspection reported that a nut and stud turns in no. 1 hole, bolt hole no. 2 had a 1 1/4" burnt hole and bolt hole no. 3 had a 1 1/8" burnt hole. An inspection of the support revealed that bolt hole no. 1 did not have a stud and nut nor a sleeve type anchor. Type of anchor could not be verified visually without removal of the anchor. Similar conditions existed for 14B-H42B. The licensee subsequently removed the anchor and determined that it was a bolt that was installed with a rounded off head in the concrete. The anchor appeared to contain a lead sleeve that acted as a wedge according to the licensee. The licensee was requested to verify that all "anchor bolts" identified as self drills with threaded rods were in fact self drill type anchors. The licensee indicated that this was the only known case where an "anchor bolt" was identified as a threaded rod but was subsequently determined to be something else. The licensee was advised that visually inspecting a presumed concrete expansion anchor with a threaded rod could not be done without removal of the nut and rod and in some cases partial lifting of the base plate.

2. Hanger WM-14B-2006 was determined to be installed but no hanger drawings were available for it. To allow base plate flexibility calculations, sketches of the support were drawn by field engineers and furnished to design engineers for calculations. During the inspection it was determined that several other non-safety related piping were supported by the hanger but were not shown on the sketch because they were not safety related. The licensee was informed that the piping that were not shown on the hanger sketch could affect the loading on the hanger and should be reflected on the sketch and should be considered in the calculations. The licensee concurred.

3. Design engineers, performance engineers and a QA inspector were questioned regarding resetting of self drill anchors by tapping the shell into the concrete. All persons questioned indicated that resetting of self drill anchors was not performed at Oconee. A review of Unit 3 inspection records and repair instructions showed no evidence of resetting of self drill anchors.

4. The licensee response to IE Bulletin 79-02 did not indicate any supports that were inaccessible and consequently could not be inspected. However, several supports in high radiation areas have not been inspected or tested. No evaluation had been performed other than a health physicist statement that the supports were in high radiation areas. The licensee was informed that inaccessibility of the supports/restraints had to be evaluated by responsible plant management personnel who could determine what action would be necessary to allow inspection of the supports/restraints. The alternative to inspecting the supports/restraints would be an analysis of the systems involved to determine the effects of failure of the uninspected supports/restraints and a consequent determination of system operability.

C. Based on the inspector concerns noted in paragraphs 5.A. and 5.B. above and the inspector concerns noted on previous inspection reports nos. 50-287/79-13 and 50-287/79-16, IE Bulletin 79-02 shall remain open for Unit 3. IE Bulletin 79-02 licensee inspections and tests for Units 1 and 2 are still to be accomplished.