



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA STREET N.W.  
ATLANTA, GEORGIA 30333

Report Nos.: 50-348/85-26 and 50-364/85-26

Licensee: Alabama Power Company  
600 North 18th Street  
Birmingham, AL 35291

Docket Nos.: 50-348 and 50-364

License Nos.: NPF-2 and NPF-8

Facility Name: Farley 1 and 2

Inspection Conducted: June 18-21, 1985

Inspectors:

*J. J. Lenahan*  
J. J. Lenahan

*7/3/85*

Date Signed

*John B. Macdonald*  
J. B. Macdonald

*7/5/85*

Date Signed

Approved by:

*Frank Jape*  
F. Jape, Section Chief  
Engineering Branch  
Division of Reactor Safety

*7/8/85*

Date Signed

SUMMARY

Scope: This routine, unannounced inspection entailed 56 inspector-hours on site in the areas of review of the surveillance and inspection program for snubbers, followup on licensee action on previous inspection findings, and review of the repairs to Units 1 and 2 containment building post tensioning system.

Results: No violations or deviations were identified.

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## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*J. D. Woodward, Plant Manager
- R. G. Berryhill, Systems Performance and Planning, Superintendent
- \*R. G. Garland, Maintenance Supervisor
- J. Hornbuckle, Mechanical Maintenance Engineer
- \*W. D. Shipman, Assistant Plant Manager

Other licensee employees contacted included three mechanics.

#### NRC Resident Inspector

- \*W. H. Bradford

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on June 21, 1985, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings.

The Technical Specifications (TS) requirements pertaining to visual inspection of snubbers were discussed. The licensee disagreed with the inspector regarding the need for tabulating snubbers which are found to be inoperable between scheduled inspections and to consider these inoperable snubbers when selecting the intervals for performance of the next visual inspection. However, pending further review of this item, the licensee committed to revise their snubber surveillance procedures to implement this requirement. The licensee stated that they would perform a review of the snubber TS and consider submitting a request for an amendment to delete this requirement in the future. No other comments were received from the licensee.

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) Unresolved Item 364/85-09-01, Tabulation of Snubber Visual Inspection Failures Which Occur Between Visual Inspection Surveillance Intervals. Review of the snubber surveillance program during a previous inspection disclosed that snubbers found to be inoperable were not considered when selecting the interval for performance of the next required visual inspection of snubbers. The inspector discussed the Technical Specifications (TS) requirements pertaining to visual inspection of snubbers with licensee

engineers and management personnel. These discussions disclosed that there was some confusion regarding the TS requirements. The purpose of visual inspection of hydraulic snubbers is to identify inoperable snubbers and determine the cause of the failures. The visual inspection frequency specified in Section 4.7.9.a of the TS is based upon maintaining a constant level of snubber protection to systems. The inspection schedule is shortened when inoperable snubbers are found. The shortened schedule is required because additional snubber failures are likely to occur in the near future which would jeopardize the plant's operating safety. The shortened schedule permits these deficiencies to be discovered and corrected on a timely basis. The snubber inspection period starts after completion of the previous visual snubber inspection and runs through completion of the next visual snubber inspection. The snubber inspection period is not limited to the time the actual snubber inspection is being performed. When a snubber is found to be visually inoperable prior to performance of a scheduled inspection, it is necessary to repair or replace the failed snubber in accordance with TS Section 3.7.9. It is also necessary to record these failures and add them to the number of failures found during the next scheduled inspection. The subsequent inspection interval is based on the total number of visually inoperable snubbers discovered since the last completed snubber inspection, plus the number of inoperable snubbers found during the most recently completed scheduled inspection.

As stated in Inspection Report No. 50-348/85-09 and 50-364/85-09, two visually inoperable snubbers (snubbers had empty reservoirs and failed functional testing) were discovered in Unit 2 in September 1984, prior to the January - February 1985, Unit 2 snubber inspection. One snubber was accessible during reactor operation, while the other was inaccessible. (The TS categorizes snubbers into two groups: those accessible and those inaccessible (due to high radiation) during reactor operation. Each group may be inspected independently.) During the January - February 1985 Unit 2 snubber inspection, no inoperable snubbers were discovered.

The licensee did not consider the two inoperable snubbers found in September 1984, when selecting the interval for performance of the next inspection. Instead, the licensee incorrectly selected the next visual inspection interval based on zero inoperable snubbers (18 months per TS 4.7.9.9). The correct inspection interval is 12 months, for both the accessible and inaccessible group of snubbers, based on one visual inoperable snubber in each group occurring during the previous inspection period. However, since the licensee had not yet exceeded the required visual inspection interval of 12 months, plus or minus 25 percent (last inspection completed in February 1985, next inspection required to be performed between December 1985 and May 1986), this item is not a violation. The licensee committed to revise their snubber inspection program to require tabulation of snubbers that are found to be visually inoperable between required scheduled inspections. Subsequent visual inspection periods will be based upon the total number of inoperable snubbers found between scheduled inspections plus the number of visually inoperable snubbers found during the most recently completed visual inspection. Unresolved Item 364/85-09-01 is closed.

#### 4. Unresolved Items

Unresolved items were not identified during this inspection.

#### 5. Independent Inspection Effort

The inspector reviewed emergency diesel generator maintenance and surveillance procedures and verified that they met the acceptance criteria specified in Technical Specifications 4.8.1.2.

Procedures examined were as follows:

- a. Maintenance Procedure FNP-O-MP-13.7, Model 38TD-1/8 Diesel Engine (Quarterly Inspection)
- b. Maintenance Procedure FNP-O-MP-14.6, Model PC-2V Diesel Engine (Quarterly Inspection)
- c. Surveillance Test Procedure FNP-O-STP-80.1 Diesel Generator 1-2A Operability Test
- d. Surveillance Test Procedure FNP-O-STP-80.5 Diesel Generator Auto Start Test (1-2A, 1C, 2C)
- e. Surveillance Test Procedure FNP-1-STP-80.6 Diesel Generator 1B 24 Hour Load Test
- f. Surveillance Test Procedure FNP-1-STP-80.14 Diesel Generator A Train LOSP Test

Within the areas inspected, no violations or deviations were identified.

#### 6. Snubber Surveillance Program - Units 1 and 2 (Module 61729)

The inspector reviewed procedures and quality records relating to the snubber surveillance program and inspected snubbers on safety-related piping systems. Acceptance criteria utilized by the inspector appears in Technical Specification 3/4.7.9.

##### a. Review of Snubber Surveillance Procedures

The inspector examined the following Unit 1 procedures which control snubber surveillance and inspection activities.

- (1) Procedure Number FNP-1-STP-6.10.1, Hydraulic Snubber Functional Test Using ITT Grinnel Model 5434 Snubber Test Machine
- (2) Procedure Number FNP-1-STP-6.10.2, Accessible Snubbers Visual Inspection

- (3) Procedure Number FNP-1-STP-6.10.6, Inaccessible Snubbers Visual Inspection
- (4) Procedure Number FNP-1-STP-6.10.7, Snubber Functional Test (Hydraulic and Mechanical) Using Wyle Laboratories Model 100 Snubber Test Machine
- (5) Farley Nuclear Plant Unit 1 Snubber Manual, Number FNP-1-M-034

b. Inspection of Snubbers

The inspectors, accompanied by licensee engineers, performed a visual inspection of the hydraulic snubbers listed below and verified that the snubbers were not damaged, that attachment to the supporting structure was secure, that the fluid level in the snubber reservoirs was higher than target levels, and leakage of the fluid was not occurring. Snubbers examined were as follows:

- (1) Snubber numbers 1-MS-BR-1, R-36, R-126, R-127A, R-134, R-201A, and R-282 on the Unit 1 main steam system
- (2) Snubber numbers FW R-190A, R-190B, R-405, R-406, and R-408 on the Unit 1 feedwater system
- (3) Snubber number ASH 367 on the Unit 1 auxiliary steam system
- (4) Snubber number AFW R54 on the Unit 1 auxiliary feedwater system
- (5) Snubber number 2FWR 71 on the Unit 2 feedwater system
- (6) Snubber numbers 2MS-BR-3, R-71, R-516A, R-516B, R-517, R-803, R-813, and R-814 on the Unit 2 main steam system

During the above inspection, the fluid reservoir on snubber number ASH 367 was found to be empty. Licensee engineers identified this problem to the shift supervisor who followed the Action Statement of TS 3.7.9 regarding inoperable snubbers. The Action Statement requires repair or replacement of the snubber within 72 hours. Maintenance work request number 112441 was initiated to replace the snubber with a new snubber and perform a functional test on snubber ASH 367 to determine if the snubber was operable. The inspectors witnessed performance of the functional test on the new snubber to verify that it was operable prior to installation, removal of the snubber with the empty reservoir, and installation of the new snubber. The inspectors witnessed the performance of the functional test on the snubber with the empty reservoir in its as-found condition, i.e., no fluid was added. The functional test results were acceptable, that is, lock up and bleed rates met acceptance criteria. Therefore, the snubber was determined



to be operable. This problem was resolved within 10 hours of discovery of the empty snubber reservoir, well within the 72 hour time limit specified in the Technical Specification. The licensee will try to determine the cause of the empty reservoir when the snubber is rebuilt.

c. Review of Quality Records

The inspectors reviewed the quality records documenting the results of visual inspections performed on Unit 1 and 2 accessible and inaccessible snubbers during the 1985 refueling outages. All snubbers were found to be operable during the scheduled visual inspections.

Within the areas inspected, no violations or deviations were identified.

7. Results of Inspections Performed on Units 1 and 2 Containment Building Post Tensioning System

On January 28, 1985, while conducting a pre-integrated leak rate test on the exterior of the Unit 2 containment building, a licensee employee noticed that a grease can (cap) covering the top of a vertical tendon was deformed. Inspection of the lower grease can on the same tendon disclosed that the lower grease can was deformed also. Removal of the lower grease can disclosed that the field anchor head had broken into seven pieces. Inspection of another tendon disclosed that the field anchor head on this tendon was cracked and separated into two pieces. Review of tendon fabrication and installation records disclosed that both of the damaged field anchor heads had the same fabrication lot control number, lot control number HV. In order to determine the cause of this problem, the licensee implemented an extensive inspection and testing program. Based on the laboratory test results the licensee concluded that the problem was not related to a specific lot control number, and that hydrogen stress cracking caused the anchor head failure. As a result, the licensee modified and expanded the inspection program to inspect all Unit 2 vertical tendons, which also included removal of the field anchor head from each tendon and performance of magnetic particle testing on the anchor heads. The expanded inspection program also involved visual inspection of randomly selected dome and horizontal tendons to establish a 95 percent probability with a 95 percent confidence limit for no cracked anchor heads. The inspection program was expanded to the Unit 1 tendons.

The inspectors reviewed the results of the visual inspections and magnetic particle testing performed on the Unit 1 and 2 vertical tendon anchor heads. This work was completed in May 1985. A summary of the results of the licensee's inspections is as follows: none of the 130 Unit 1 vertical tendon anchor heads were found to be damaged (cracked) by visual inspection; six Unit 1 anchor heads were rejected, that is cracks were found, by magnetic particle examination; a total of three of the 130 unit 2 vertical anchor heads were found cracked by visual inspection (tendon numbers V-17, V-21, and V-31); and 17 anchor heads were found cracked by magnetic particle examination.

During the inspection, the licensee was in the process of greasing the dome tendons. The inspectors witnessed greasing of dome tendon numbers D-127 and D-328. These tendons were greased from one end only due to proximity of one end over the safety relief valves. Greasing of the other end will be performed during the next outage.

Within the areas inspected, no violations or deviations were identified.