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

Report Nos.: 50-348/84-24 and 50-364/84-24

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

Docket Nos.: 50-348 and 50-364 License No.: NPF-2 and NPF-8

Facility Name: Farley 1 and 2

Inspection Conducted: September 5-7, 1984

Inspector: B. R. Crowley 9/17/84
B. R. Crowley Date Signed

Approved by: J. J. Blake 9/18/84
J. J. Blake, Section Chief Date Signed
Engineering Branch
Division of Reactor Safety

SUMMARY

Scope: This routine, unannounced inspection entailed 23 inspector-hours on site in the areas of spent fuel storage racks (Unit 1) and steam generator tube leaks (Unit 2).

Results: No violations or deviations were identified.

REPORT DETAILS

1. Licensee Employees Contacted

*J. D. Woodard, Plant Manager
*W. B. Shipman, Assistant Plant Manager Support
*D. N. Morey, Assistant Plant Manager - Operations
*J. E. Garlington, Systems Performance Supervisor
*W. G. Ware, Safety Audit and Engineering Review Supervisor
D. B. Hartline, Generating Plant Engineer - Supervising
*S. J. Ellis, Engineer, Plant Modification Department
*G. S. Waymire, Generating Plant Engineer
W. Jaasma, Mechanical Lead Engineer
P. Zoglmann, Modification and Evaluation Testing Engineer

Other Organizations

R. Pollice, Field Coordinator, Westinghouse (W)
S. Emery, Level IIA, Zetec
R. Marlow, Senior Vice President, Conam Inspection
R. Dua, Senior Engineer, Southern Company Services (SCS)

NRC Resident Inspectors

*W. H. Bradford, Senior Resident Engineer
*W. H. Ruland, Resident Engineer

*Attended exit interview.

2. Exit Interview

The inspection scope and findings were summarized on September 7, 1984, with those persons indicated in paragraph 1 above. The licensee acknowledged the inspection findings listed below and took no exceptions. Relative to failure to plug two Unit 2 steam generator "B" tubes that should have been plugged last outage, the licensee agreed to consider reporting in their LER the reasons for misinterpretation of previous inspection results.

(Open) Unresolved Item 364/84-24-01, Missed ET Indications in Steam Generator Tubes, paragraph 5.b.

3. Licensee Action on Previous Enforcement Matters (92702)

This subject was not addressed in the inspection.

4. Unresolved Items (92701)

Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve violations or deviations. A new unresolved item is discussed in paragraph 5.

5. Independent Inspection Effort (92706B) (Unit 2)

On August 31, 1984, the licensee reported that Unit 2 was being shut down to plug two tubes in steam generator "B". A recent review of the 1983 eddy current (ET) tapes revealed that the tubes (Column 16, row 31 and column 16, row 32) should have been plugged during the 1983 outage based on through wall tube degradation of 74% for column 16, row 31 and 81% for column 16, row 32. During the current inspection, the inspector examined this problem in detail. The following summarizes this examination:

a. During the Fall 1983 outages the licensee performed ET inspection of 742 tubes or 22% of the tubes in each steam generator. In the Spring of 1984, leakage from primary to secondary (based on activity) was noted. In May 1984, the leakage was calculated to be approximately 10-12 gpd. The calculated leakage from generator B gradually increased to approximately 70 gpd at the time the Unit was shut down. The other two generators also showed some activity, but it was thought that this could be from leakage in generator "B" being transferred through the loops to the other generators.

Based on leakage and in preparation for future efforts to identify the source of the leak(s), the licensee contracted Conam Inspection to review the 1983 (second outage) ET data. W was requested to review the first outage ET data for the same purpose. In their review, W also reviewed the 1983 data and found two generator "B" tubes (Column 16, Row 31 and Column 16, Row 32) that should have been plugged during the 1983 outage. Prior to this inspection, the W review had been completed and no other problems identified. At the conclusion of the inspection, Conam was still in the process or completing their review.

During the inspection, the licensee performed a Helium leak test on all three generators. The test revealed a leak in generator "B" Column 16, row 32 tube (one of the tubes that should have been plugged during the 1983 outage). An additional leak was found in one steam generator "A" tube.

b. The inspector reviewed the 1983 ET tapes of the two generator "B" tubes that should have been plugged during the 1983 outage. The indications were reviewed and discussed with W and Conam ET personnel. The inspector questioned the ET personnel relative to whether the indications should have been noted and rejected during the 1983 review and analysis. Based on the proximity of the indications to the tube sheet (approximately ½" above the tube sheet on the hot leg side) it was not clear whether the indications should have been noted. The inspector pointed out to the licensee that the reason for missing the

indications should be addressed in the LER. The licensee agreed to consider reporting in the LER the reasons for missing the indications. Pending review of the LER and the reasons for missing the indications, this matter is considered unresolved and is identified as item 364/84-24-01, Missed ET Indications in Steam Generator Tubes.

c. Qualification/certification records for the level IIA examiner who missed the ET indication during the 1983 inspection were reviewed.

d. Based on the 1983 ET results for the two generator "B" tubes that should have been plugged, the licensee had issued an ET inspection program and plan for generator "B" based on Category "2-C" inspection results. The inspector reviewed this plan and program (See paragraph 6 below).

e. Subsequent to the inspection, the licensee provided the following information to the inspector by telephone:

- In "B" generator, the leak in tube column 16, row 32 and the degradation in tube column 16, row 31 were confirmed by ET testing. Both tubes were plugged and the Helium leak test repeated with acceptable results. Additional tubes in the vicinity of the two defective tubes were included in the C-2 category ET sample plan. The ET testing was completed and no additional problems were identified.

- The one tube leak in generator "A" was confirmed by ET testing. The ET test showed approximately 90% through wall degradation ½" below the top tube support on the hot leg side. The tube was plugged and the Helium leak test repeated with acceptable results. Eight tubes around the defective tube were ET tested with acceptable results.

- A foreign object (7/8" socket wrench) was found on the secondary side of generator "B" in the vicinity of the two defective tubes.

In this area of inspection, no violations or deviations were identified.

6. Inservice Inspection - Review of Procedures and Observation of Work Activities (73052 and 73753B) (Unit 2)

The inspector reviewed procedures and examined work activities as described below relative to preparations for steam generator tube ET testing. The testing was to verify leaking tubes and to satisfy Technical Specification requirements for testing as a result of two defective tubes being missed during original evaluation of generator "B" ET results in 1983. The applicable code is the ASME Boiler and Pressure Vessel Code, Section XI, Appendix IV, 1980 Edition, S81 Addenda.

a. The inspection program, plan, and procedures were included in Alabama Power Company procedure FNP-2-STP-159.0, "Steam Generator Eddy Current Inspection and Mechanical Plugging". The following procedures were included:

- MRS 2.4.2 APC-4, R1, "Multi-Frequency Eddy Current Inspection"
- MRS 2.2.2 APC-1, R0, "Installation and Removal of Temporary Nozzle Covers"
- MRS 2.4.2 APC-1, R0, "Installation and Removal of Steam Generator Tube Identification Templates"
- MRS 2.4.2 APC-3, "Installation and Removal of Eddy Current Positioning Device"
- MRS 2.2.2, APC-2, R1, "Steam Generator Tube Sheet Marking"

The above program, plan, and procedures were reviewed in the areas of:

- Procedure approval
- Qualification of NDE Personnel
- Procedure scope relative to compliance with code and technical specifications
- Procedure technical content relative to: equipment, test sensitivity, material permeability, test method, calibration and acceptance criteria
- Compilation of required records

b. Personnel qualification/certification records for four (two level I and two level II) W and one (level IIA) Zetec examiners were reviewed.

c. W ET trailer and equipment were observed and equipment calibration records were reviewed and compared with identification on the equipment.

In this area of inspection, no violations or deviations were identified.

7. Spent Fuel Storage Racks - Observation of Work and Work Activities (50095) (Unit 1)

The inspector examined the welding and NDE activities described below relative to the spent fuel storage racks. Rack installation was in process during this inspection. There are 20 racks (PaR Modules) manufactured by PaR Systems Corporation. In accordance with the SCS specification listed below, the applicable specification for welding and NDE is the ASME Boiler and Pressure Vessel Code, Section III, Subsection NF, Class 3; Section V; and Section IX; 1980 Edition, S81 Addenda. There is no welding involved

with installation of the racks. Therefore, the review described below pertains to fabrication welding.

a. The following documents, which specify fabrication welding and NDE requirements, were reviewed:

   - SCS specification No. SS-1116-23, R3, "Spent Fuel Storage Racks for Joseph M. Farley Plant - Units No. 1 and 2"

   - PaR Drawing AD-32264-D, Revision E, "Fuel Module Assembly - 6 X 7" SH 1, 2, and 3

   - PaR Specification DC-9020-1, "Design and Fabrication Criteria - Spent Fuel Storage Racks"

b. Accessible welds for racks AD-32264-D-01, AD-32264-D-02, and AD-32265-D-11 were visually examined for appearance and general overall quality. In addition, for a sample of welds on each of the three racks, weld sizes were compared with drawing requirements.

c. A sample of welding and NDE records from documentation packages for racks AD-32264-D-01, AD-32264-D-02, and AD-32265-D-11 were reviewed.

In this area of inspection, no violations or deviations were identified.