



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

Report Nos.: 50-348/84-17 and 50-364/84-17

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 Dates: June 11 - July 10, 1984

Inspection at Farley site near Dothan, Alabama

Inspectors:	<u><i>W. H. Bradford</i></u>	<u>7/19/84</u>
	W. H. Bradford, Senior Resident Inspector	Date Signed
	<u><i>W. H. Ruland</i></u>	<u>7/19/84</u>
	W. H. Ruland, Resident Inspector	Date Signed
Approved by:	<u><i>F. S. Cantrell</i></u>	<u>7/19/84</u>
	F. S. Cantrell, Section Chief	Date Signed
	Division of Reactor Projects	

SUMMARY

Scope: This routine inspection involved 163 inspector-hours on site in the areas of monthly surveillance observation, monthly maintenance observation, operational safety verification, independent inspection effort, and steam generator tube leak.

Results: A violation was identified. Inadequate procedure and failure to follow approved procedures.

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## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

J. D. Woodard, Plant Manager  
D. N. Morey, Assistant Plant Manager  
W. D. Shipman, Assistant Plant Manager  
R. S. Hill, Operations Superintendent  
C. D. Nesbitt, Technical Superintendent  
R. G. Berryhill, Systems Performance and Planning Superintendent  
L. A. Ward, Maintenance Superintendent  
J. E. Odom, Operations Sector Supervisor  
B. W. Vanlandingham, Operations Sector Supervisor  
T. H. Esteve, Planning Supervisor  
J. B. Hudspeth, Document Control Supervisor  
L. K. Jones, Material Supervisor  
R. H. Marlow, Technical Supervisor  
L. M. Stinson, Plant Modification Supervisor  
W. G. Ware, Supervisor, Safety Audit Engineering Review

Other licensee employees contacted included technicians, operation personnel, maintenance and I&C personnel, security force members, and office personnel.

### 2. Exit Interview

The inspection scope and findings were summarized during management interviews throughout the report period and on July 11, 1984, with the plant manager and selected members of his staff. The violation described in paragraph 7 was discussed in detail. The licensee acknowledged the findings.

### 3. Licensee Action on Previous Enforcement Matters (92702)

(Closed) Violation (348/84-05-01) Failure to perform a written safety evaluation prior to transferring water from the spent fuel pool to the transfer canal using a temporary submersible pump. Based on the licensee's letter of response to the violation and inspection of the corrective action, the item is closed.

### 4. Unresolved Items

Unresolved items were not identified during this inspection.

## 5. Monthly Surveillance Observation (61725)

The inspector observed and reviewed Technical Specification required surveillance testing and verified that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated; that limiting conditions for operation were met; that test results met acceptance criteria requirements and were reviewed by personnel other than the individual directing the test; that any deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel; and that personnel conducting the tests were qualified.

The inspector witnessed/reviewed portions of the following test activities:

- FNP-1&2-STP-1.0 - Operations Daily and Shift Surveillance Requirements, Modes 1, 2, 3 and 4.
- FNP-1-STP-80.1 - Diesel Generator 1-C Operability Test.
- FNP-1-STP-4.9 - Charging Pump 1-C Monthly Check.
- FNP-2-STP-22.1 - Auxiliary Feed Water Pump 2A Inservice Test.

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

## 6. Monthly Maintenance Observation (62703)

Station maintenance activities of safety-related systems and components were observed/reviewed to ascertain that they were conducted in accordance with approved procedures, regulatory guides, industry codes and standards, and were in conformance with Technical Specifications.

The following items were considered during the review: limiting conditions for operations were met while components or systems were removed from service; approvals were obtained prior to initiating the work; activities were accomplished using approved procedures and were inspected as applicable; functional testing and/or calibrations were performed prior to returning components or systems to service; quality control records were maintained; activities were accomplished by qualified personnel; parts and materials were properly certified; radiological controls were implemented; and fire prevention controls were implemented.

Work requests were reviewed to determine the status of outstanding jobs to assure that priority was assigned to safety-related equipment maintenance which may affect system performance. The following maintenance activities were observed/reviewed:

- a. 1-B diesel generator day tank level indicator (MWR-91318)
- b. Changed limit switch lubrication (MWR-80542)

- c. DG-08/14 air circuit breaker UV/UT protection circuit, changed out old HFA relays
- d. 1-B diesel jacket water temperature control
- e. 1-C charging pump
- f. 1-C diesel generator

During this reporting period, the licensee experienced a failure of the 1-C diesel generator due to failure of the generator outboard bearing. This bearing is a roller bearing. The diesel engine thrust bearing failed concurrently due to the shift in shaft thrust after the generator bearing failure. The licensee procured the services of the manufacturer's representative who assisted in the bearing replacement.

The cause of the generator bearing failure is not known at this time but is believed to have been caused by low bearing oil level or a shorted insulated bearing through a RTD penetration through the bearing cap.

The licensee installed an insulated bushing in the RTD penetration on the replacement bearing. The vendor has devised a method to test the insulation of the bearing. The licensee has performed this test on the other diesel generator of this type and the results are within the acceptable range. The oil level has been raised 3/16 inch.

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

#### 7. Operational Safety Verification (71707)

The inspectors observed control room operations, reviewed applicable logs, and conducted discussions with control room operators during the report period. The inspectors verified the operability of selected emergency systems, reviewed tagout records, and verified proper return to service of affected components. Tours of the auxiliary, diesel, and turbine buildings were conducted to observe plant equipment conditions, including fluid leaks and excessive vibrations.

The inspectors verified compliance with selected Limited Condition for Operation (LCO) and results of selected surveillance tests. The verifications were accomplished by direct observation of monitoring instrumentation, valve positions, switch positions and review of completed logs, records, and chemistry results. The licensee's compliance with LCO action statements were reviewed as they happened.

- a. The following systems and components were observed/verified operational:

- (1) Station electrical boards in the control room and various electrical boards throughout the plant for proper electrical alignment.

- (2) Certain accessible hydraulic snubbers.
- (3) Accessible portions of service water and components cooling water systems.
- (4) Units 1 and 2 suction and discharging piping and valves on auxiliary feedwater system.
- (5) Diesel generators and support systems.
- (6) Certain accessible portions of Chemical and Volume Control System (CVCS) piping and valves to and from the charging/high head safety injection pumps.
- (7) Certain portions of Residual Heat Removal (RHR) and containment spray systems.
- (8) Portions of various other systems (safety-related and nonsafety-related) were observed for proper alignment and operation.

The following discrepancies were found:

- b. On June 13, 1984, at 8:54 a.m., a systems operator improperly performed a tagging order. Tagging operations order 84-0461-2 for the Unit 2 turbine driven auxiliary feed pump trip throttle valve (MOV-3406) had two tags. Step 1 of the tagging order removal sequence required the operator to remove a tag on the manual operator of MOV-3406. Step 2 required the operator to remove the tag and open MOV-3406 from the balance-of-plant (BOP) panel. The operator, for step 1, removed the tag on the manual operator and opened MOV-3406 locally, contrary to the tagging order. FNP-0-AP-14, Safety Clearance and Tagging, section 6.4.3.2, requires the designated operator (in this case a system operator) to execute the removal portion of the tagging operations order, removing the hold tags and repositioning the control devices in the sequence specified in the order. Thus, the operator failed to follow procedure AP-14.
- c. On June 11, 1984, at 1:15 p.m., the inspector found the Unit 2 Turbine Driven Auxiliary Feedwater (TDAFW) speed control SIC-3405 set to 95%. SIC-3405 is located on the main control board. This adjustment was made per FNP-2-STP-22.0 TDAFW pump operability test step 5.6. The procedure required the adjustment of SIC-3405 to obtain a turbine speed of 3960 RPM. SIC-3405's position was not independently verified by STP-22.0 nor was SIC-3405 on the systems checklist. This controller directly affects the AFW flow rate into the steam generators by controlling the speed of the turbine. 3960 RPM is the design speed of the turbine as listed in FSAR table 6.5-1. Therefore, the TDAFW pump was operable at all times. However, the required independent verification of the controller was not performed. FNP-0-AP 52, Rev. 4 Equipment Status Control and Maintenance Authorization, Appendix III, Section 3.0, Post-Maintenance Requirements, requires an independent

verification of alignment of certain systems, including the auxiliary feedwater system. The failure to independently verify SIC-3405 is a failure to follow procedure AP-52.

- d. On June 15, 1984, at approximately 3 p.m., the inspector observed an Instrumentation and Control (I&C) technician returning to service transmitter Q2E11FT605B (RHR Heat Exchanger Bypass Flow Control). The I&C technicians were calibrating FT605B per FNP-2-IMP-206.8. While returning the transmitter to service, five valves were manipulated: an equalizer valve, two transmitter isolation valves, and two additional valves between the system root valves (under the operation group control) and the transmitter isolation valves. IMP-206.8 did not direct the I&C technician to manipulate the valves between the root and isolation valves; yet, those valves were operated. Also, IMP-206.8 did not require an independent verification for return to service of FT605B. Further review by the inspector showed that, in general, I&C Instrument Maintenance Procedures (IMPs) (non-reactor trip or ESF initiation instruments) lacked explicit independent verification upon return to service of transmitters. Additional examples included:

- (1) FNP-1-IMP-205.2, Safety Injection Header to BIT Tank Flow FT 943.
- (2) FNP-1-IMP-205.3, Boron Injection Header Pressure.
- (3) FNP-1-IMP-209.10, Condensate Storage Tank to TD AFW Flow Loop 3403.

Also, the licensee stated that other transmitter lines had additional valves installed that were not explicitly addressed in a procedure when required.

e. Conclusion of the Inspectors

The licensee failed to fully implement or follow procedures. Four examples are:

- (1) Failed to follow AP-14 by performing tagging order out of sequence.
- (2) SOP-22.0 was inadequate in that the TDAFW pump speed controller was not on the system checklist.
- (3) I&C IMPs were inadequate since independent verification of transmitter valves was not required.
- (4) I&C IMPs were inadequate since valves were manipulated by I&C personnel that were not identified in the procedure.

This is a violation (348/84-17-01 and 364/84-17-01).

8. Independent Inspection Effort (92706)

The inspectors routinely attended meetings with certain licensee management and observed various shift turnovers between shift supervisors, shift foremen, and licensed operators. These meetings and discussions provided a daily status of plant operating and testing activities in progress, as well as discussion of significant problems or incidents.

The inspectors reviewed the licensee's program for maintenance personnel training. A journeyman must have three years creditable experience. A checklist is used to evaluate the experience to ensure that the ANSI requirements have been met. Maintenance personnel receive three weeks training on maintenance practices every six months.

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

9. Steam Generator Tube Leak

The licensee has determined that Unit 2A and 2B steam generators have steam generator tube leaks. At the end of this reporting period, leakage in the 2A steam generator was 7 to 9 gpd; 2B steam generator leakage was 53.2 gpd. The leak rate is determined by analysis for sodium 24 isotope. 2C generator sample shows no sodium 24 isotope.

The licensee is monitoring the 2B generator by R-15, the steam jet ejector monitor, and by samples from the secondary side of the generator every two hours.

The inspectors are following the progress of these leaks.