UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

Report No.: 50-348/87-33 and 50-364/87-33

Licensee: Alabama Power Company
600 North 18th Street
Birmingham, AL 35291-0400

Docket Nos.: 50-348 and 50-364 License Nos.: NPF-2 and NPF-8

Facility Name: Farley Units 1 and 2

Inspection Conducted: November 17, 1987 - January 11, 1988

Inspection at Farley site near Dothan, Alabama

Inspectors: Leo P. Madews 1/27/88
for W. H. Bradford Date Signed

for Leo P. Madews 1/27/88
W. H. Miller Date Signed

Approved by: H C Dance 1/27/88
H. C. Dance, Section Chief Date Signed
Division of Reactor Projects

SUMMARY

Scope: This routine, onsite inspection involved a review of previous enforcement matters, surveillance observation, monthly maintenance observation, operational safety verification, radiological protection, physical security, cold weather preparation, engineered safety system, IEB No. 87-02, licensee event reports, and followup of plant events.

Results: There were no violations or deviations identified.

REPORT DETAILS

1. Licensee Employees Contacted:

J. D. Woodard, General Plant Manager
D. N. Morey, Assistant General Plant Manager
W. D. Shipman, Assistant General Plant Manager
R. D. Hill, Operations Manager
C. D. Nesbitt, Technical Manager
R. G. Berryhill, Systems Performance and Planning Manager
J. J. Thomas, Maintenance Manager
L. W. Enfinger, Administrative Manager
J. E. Odom, Operations Unit Supervisor
B. W. Vanlandingham, Operations Unit 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 Manager
J. K. Osterholtz, Supervisor, Safety Audit Engineering Review

Other licensee employees contacted included technicians, operations 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 January 11, 1988, with the general plant manager and selected members of his staff. The inspection findings were discussed in detail. The licensee acknowledged the inspection findings and did not identify as proprietary any material reviewed by the inspector during this inspection.

3. Licensee Action on Previous Enforcement Matters (92702)

(Closed) Violation 348, 364/87-14-01, Inadequate Post Maintenance and Design Change Inspection Program on Control Room Fire Dampers. The inspectors reviewed the licensee's response of August 25, 1987 to this violation and reviewed the corrective actions taken to prevent recurrence. These actions include resolution of electrical problems associated with the dampers, removal of smoke release devices from fire dampers where not required and revised inspection and test program to functionally test the fire dampers. This item is closed.

(Closed) Unresolved Item 348, 364/87-17-01, Retermination of Electrical Leads to Solenoid Operated Valves to Meet Environmental Qualification (EQ) Requirements. This item is addressed in Report 348,364/87-25 and is therefore closed.

(Closed) Unresolved Item 348, 364/87-17-02, Retermination of Electrical Leads to Motor Operated Valves to meet EQ Requirements. This item is addressed in Report 348, 364/87-25 and is therefore closed.

(Closed) Unresolved Item 348, 364/87-17-03, Retermination of Electrical Power Leads to Fan Motors Inside Containment Buildings. This item is addressed in Report 348, 364/87-25 and is therefore closed.

(Closed) Violation 348, 364/87-17-04, Failure to Establish, Implement and Maintain Procedures Required by Technical Specifications (TS). The inspectors reviewed the licensee's response dated September 29, 1987 to this violation and reviewed the corrective actions taken to prevent recurrence. These actions include: assignment of Document Control to track amendments to TS to verify that appropriate actions are taken by the responsible plant group; operations personnel have been retrained on the necessity to perform test procedures in the required sequence; and, plant modifications personnel have been instructed to provide adequate circuit testing for future modifications. This item is closed.

(Closed) Violation 348, 364/87-23-01, Failure to Properly Calibrate Starting Air Receiver Pressure Switches for Emergency Diesel Generator Nos. 1-2A, 1B and 2B. The inspectors reviewed the licensee's response of November 2, 1987 to this violation and reviewed the corrective actions taken to prevent recurrance. These actions include reinstructions to Instrumentation and Control (I&C) personnel to meet the requirements of setpoint design documents and to follow the existing plant administrative procedures if changes are required to the setpoints. This item is closed.

(Closed) Unresolved Item 348, 364/87-23-02, Cross Train Service Water Cooling to Unit 2 Battery Charger Room Coolers. LER-364/87-02 provides a description of this item and the corrective action taken. A justification for continued operation was prepared and approved by the plant staff. Procedures were developed to keep the rooms below 120°F in the event of any postulated equipment failure until required piping modification to provide proper train orientation were completed. This modification work was completed during the refueling outage of October-November 1987. The licensee's actions met the requirements of 10 CFR Part 2 Appendix C for licensee identified and corrected problems. Therefore, a Notice of Violation will not be issued for this problem. This item is closed.

(Closed) Violation 348, 364/87-24-01, Failure to Follow Open Flame/Fire Watch Procedures. The inspectors reviewed the licensee's response of November 20, 1987 to this violation and reviewed the corrective actions taken to prevent recurrence. These actions include disciplining the fire watch for inadequate performance and reinstruction regarding firewatch responsibilities. This item is closed.

4. Surveillance Observation (61726)

The inspectors observed and reviewed Technical Specification required surveillance testing and verified that testing was performed in accordance with adequate procedures; test instrumentation was calibrated limiting conditions for operation (LCO) were met; test results met acceptance criteria and were reviewed by personnel other than the individual directing the test; deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel; and personnel conducting the test were qualified. Portions of the following test activities were witnessed, observed or reviewed by the inspectors:

1-STP-2.7	Boric Acid Transfer Pump 1B Quarterly Inservice Test
2-STP-19.1	Reactor Cavity H2 Dilution and H2 Mixing Systems (Train A)
2-STP-80.1	Diesel Generator 2B Operability Test
2-STP-80.2	Diesel Generator 2C Operability Test
1-STP-81.2	Diesel Generator 1B Fuel Oil Transfer System Quarterly Inservice Test
2-STP-112	Rod Drop Time Measurement
1-STP-114.1	Moderator Temperature Coefficient Determine when CB less than 300 ppm
1-STP-614	Auxiliary Building Battery Charger (1B) Load Test
2-ETP-3601	Zero Power Reactor Physics Test Procedure (Criticality Procedure)

No violations or deviations were identified.

5. 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. Items considered during the review included: verification that limiting conditions for operations were met while components or systems were removed from service; approvals were obtained prior to initiating the work; approved procedures were used; completed work was 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; and, radiological and fire prevention controls were

implemented. Work requests were also 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:

MWR 148966A, Replace Bearing for Charging Pump 1C

MWR 148988, Repair Unit 2 Refueling Water Purification Pump

MWR 166087 through 166090, Remove Fuses for Unit 1 Reactor Head Vent Valves

MWR 166157 and 166158, Installation of Freeze Protection Enclosure for Main Steam Valve Rooms

MWR 162762A, Repair Control Room HVAC Damper 2768B

MWR 169348, Repairs to Unit 1 Steam Generator Blowdown Radiation Monitor

O-MP-12.3, Diesel Generator 1B Air Start System Quarterly Inspection

O-MP-14.6, Diesel Generator 1B Quarterly Inspection

O-MP-40.0, Maintenance of Emergency Lighting Outside Containment

1-MP-47.0, Freeze Protection for Severe Weather Conditions

2-MP-47.0, Freeze Protection for Severe Weather Conditions

a. Incorrect Fuse Rating

The inspectors examined fuses removed from the circuits to solenoid valves for head vent valves 2213A, 2213B, 2214A and 2214B. These fuses had been removed on November 29, 1987 to meet TS 3.4.12 which required valves to the Reactor Vessel head vent systems to be closed and power removed when the vent systems paths were inoperative. The Reactor Vessel head vent systems were inoperative on November 29. The inspectors noted that four of the fuses were rated at 3 1/2 Amps and were of the dual element time delay type whereas the remaining 14 fuses were rated at 3 Amps and were of the single element "fast fuse" type. Further investigation indicated that construction drawing Nos. D-177300, Sheets 1 and 2, and 177394 Sheets 5 and 6 required 3 Amp fuses for these circuits. It appears that PCN B-83-1465 changed the required rating of these fuses to the 3 1/2 Amp type. However, the drawing had not yet been revised to incorporate this change.

The licensee is reviewing this item to determine why the drawings were not revised and is to review at least three other recent plant changes which resulted in fuse size changes to ascertain if these

changes had been incorporated in the "As Built" design drawings. This item is identified as Unresolved Item* 348, 364/87-33-01 pending completion of the licensee's review.

b. Maintenance of 8-Hour Emergency Lighting Units

During plant tours the inspectors noted a number of battery powered emergency lighting units which appeared to be in need of maintenance. A review of the routine maintenance performed on the emergency lighting units indicated that the licensee was experiencing difficulties in the maintenance of these units primarily due to replacement parts not being available for many units in need of repairs. Apparently, several of the model units installed at Farley are no longer manufactured. The licensee has issued PCN's S-85-13426 and S-85-2-3427 which provide replacement parts/unit information to be used when the lighting units require repairs.

Presently, there is a total of approximately 450 emergency lighting units located throughout the plant, excluding containment, which require periodic inspection and tests to meet commitments of FSAR Sections 9B.6.1 and 9B.7.1 and FSAR Table 9B-7. However, the lighting units needed to meet the safe shutdown and emergency requirements of 10 CFR 50 Appendix R should receive a high degree of attention. The inspectors suggested that an evaluation be made to assure that these units are properly maintained. This is identified as Unresolved Item* 348, 364/87-33-02 pending completion of the licensee's review.

No violations or deviations were identified.

6. Operational Safety Verification (71707)

The inspectors observed control room operations, reviewed applicable logs and conducted discussions with control room operators during the report period. Also, the operability of selected emergency systems was verified, tagout records were reviewed and proper return to service of affected components was verified. Tours of the auxiliary building, diesel building, turbine building and service water structure were conducted to observe plant equipment conditions, including fluid leaks and excessive vibrations and general housekeeping efforts. The inspectors verified compliance with selected limiting condition for Operation (LCO) and results of selected surveillance tests. The verifications were accomplished by direct observation of monitoring instrumentation, valve positions, switch positions, accessible hydraulic snubbers, and review of completed logs, records, and chemistry results. The licensee's compliance with LCO action statements were reviewed as events occurred.

*Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve violations or deviations.

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

a. Spill From RHR System

On November 27, 1987 during licensee's performance of procedure 2-STP-11.6, Residual Heat Removal Valve Inservice Test, with both RHR pumps in service and plant in cold shutdown a pressure surge caused an RHR pump suction relief valve to open and remain stuck open. This relief valve discharged the resultant flow into the pressurizer relief tank which ruptured the rupture disk on the relief tank and caused a spill of approximately 2200 gallons of reactor coolant into the containment building. No major equipment was damaged and no personnel injury was involved. For details on this event refer to Report No. 348, 364/87-35.

b. Cracked Safety Injection Piping

On December 8, 1987 with unit at 33% power following a refueling outage the licensee identified pressure boundary leakage from Reactor Coolant System (RCS). The unit was shut down. Examination indicated that the leak was in the safety injection line between a check valve and RCS loop "B" cold leg and resulted from a through wall defect in a welded joint between a long radius elbow and a straight section of pipe. The section of pipe containing the defect has been sent to Westinghouse R & D Center for failure analysis. Preliminary evaluation indicates vibration and thermal cycling as a potential cause of the pipe leak. For additional information on this event refer to LER 364/87-10 and NRC Report 348, 364/87-36 of inspection conducted by the Region II Materials and Processes Section.

No violations or deviations were identified.

7. Radiological Protection Program (71709)

Selected activities of the licensee's Radiological Protection Program were reviewed by the inspectors to verify conformance with plant procedures and NRC regulatory requirements. The areas reviewed included the organization and management of the plant's health physics staff; "ALARA" implementation; Radiation Work Permits (RWP's) for compliance to plant procedures; personnel exposure records; observation of work and personnel in radiation areas to verify compliance to radiation protection procedures; and control of radioactive materials.

On December 28, 1987 a contract laborer assign to decontamination activities in Unit 1 Auxiliary Building made an unauthorized entry into a high radiation exclusion area containing the spent fuel pool

demineralizer. Dose rates for this area were approximately 230,000 mrem/hour at the demineralizer, 100,000 mrem/hour 1 foot from the demineralizer, and 30,000 mrem/hour in the general room area. The individual received a dose of approximately 455 mrem which exceeds the licensee administrative exposure limits. For additional information on this event refer to Report 348, 364/88-02 conducted by Region II radiation specialists.

No violations or deviations were identified other than that contained in the referenced report.

8. Physical Security Program (71881)

The licensee's compliance to the approved security plan was reviewed by the inspectors. The inspectors verified by observation and interviews with security force members that measures taken to assure the physical protection of the facility met current requirements. Areas inspected included: organization of the security force; establishment and maintenance of gates, doors, and isolation zones; access control; and, badging procedures.

No violations or deviations were identified.

9. Licensee Event Reports (92700)

The following Licensee Event Reports (LERs) were reviewed for potential generic problems to determine trends, to determine whether information included in the report meets the NRC reporting requirements and to consider whether the corrective action discussed in the report appears appropriate. Licensee action, with respect to selected reports, were reviewed to verify that the event had been reviewed and evaluated by the licensee as required by the Technical Specification; that corrective action was taken by the licensee; and that safety limits, limiting safety setting and LCOs were not exceeded. The inspector examined selected incident reports, logs and records, and interviewed selected personnel. The following reports are considered closed:

Unit 1 (50-348)

LER-87-12 Environmental Qualification of Wiring Splices and Terminations. For additional information on this item refer to NRC Report 348, 364/87-25.

LER-87-13 Land Use Census Identified Increase in Calculated Dose.

LER-87-14, 15 and 16 Special Report: Fire Damper Inoperative Due to Failure to Close With Air Flow.

LER-87-17 Special Report: Fire Door 496 Inoperative for More than 7 Days.

LER-87-18 Drawing Errors Leads to Both Containment Hydrogen Recombiners Being Inoperative.

LER-87-19 10 CFR 73.71 Report: Visitor Found Unescorted in Vital Area.

LER-87-20 10 CFR 73.71 Report: Unauthorized Access Gained to the Main Control Room.

LER-87-21 Special Report: Fire Dampers Inoperative Due to Failure to Close with Air Flow.

LER-87-22 10 CFR 72.71 Report: Unauthorized Individual Entered the Main Control Room.

LER-87-23 Special Report: Fire Dampers Inoperative Due to Failure to Close With Air Flow.

Unit 2 (60-364)

LER-87-02 Cross Train Service Water Cooling to Battery Room Coolers.

LER-87-03 Personnel Error Results In Technical Specification Action Statement Requirements Not Being Met When R-29A Was Inoperative.

LER-87-04 Steam Generator Tube Degradation.

LER-87-05 and 06 Personnel Error Causes Actuation of Engineered Safety Feature Equipment.

LER-87-07 Special Report: Fire Barrier Penetration Non-Functional For More Than 3 Days.

LER-87-08 Special Report: Opening of Reactor Coolant System Pressure Relief Valve.

LER-87-09 Personnel Error Leads to Reactor Trip Due to Low Steam Generator Level Coincident With Feedwater Flow Less Than Steam Flow Signal.

10. Engineered Safety Systems Inspections (71710)

The inspectors performed various system inspections during the inspection period. Overall plant conditions were assessed with particular attention to equipment condition, radiological controls, security, safety, adherence to technical specification requirements, systems valve alignment, and locked valve verification. Major components were checked for leakage and any general conditions that would degrade performance or prevent fulfillment of functional requirements. The inspectors verified that approved procedures and up-to-date drawings were used.

Portions of the following systems were observed for proper operation, valve alignment and valve verification:

Auxiliary Feedwater Systems
Chemical Volume Control Systems
Service Water Systems
Boric Acid Transfer Systems
Containment Spray System Including Chemical Additive System
Residual Heat Removal System

No violations or deviations were identified.

11. Follow up of Plant Events (93702)

On December 3, 1987, at 11:48 p.m., Unit 2 reactor tripped from 1.9% power. The trip was caused by 2A steam generator level decreasing to 25% while one channel of steam flow/feed water flow was in the tripped condition. The emergency procedures were implemented. The Shift Technical Advisor responded to the control room. The reactor was stable and all systems responded as designed. Refer to LER/364/87-09 for additional information on this event.

12. IEB No. 87-02: Selection of Fasteners for Testing

The inspector participated in the stud, bolt and nut selection program with the licensee to facilitate the selection criteria of IEB No. 87-02. Due to time constraints and limited available information, the licensee determined that an accurate determination of the percentage of fasteners "in plant use" could not be made. A representative sample program was developed. Single samples were selected where there was only one set of fasteners for a given alloy. This is based on a hybrid approach of selecting a sample from each alloy. Therefore, a sample from each alloy was made while weighting overall sample selection based on the more prevalent alloy utilized. The samples were selected from a computer printout of safety related and non-safety related fasteners. This printout designated the type, size, use and primary location of the fastener. One fastener was found with a KS designation. This is a non-safety related fastener. It was included in the sample. The licensee has transported all of the fasteners to private contracted laboratories for testing.

13. Cold Weather Preparations (71714)

The inspectors conducted a review of the licensee's cold weather preparations to ascertain if effective measures had been implemented for protection of safety related systems from extreme cold weather. The licensee had initiated and completed procedures to inspect and verify operability of heat tracing, space heaters and insulation installed to protect systems from freezing. Temporary enclosures have been installed around the main steam valve rooms to help prevent freezing of the piping

and components in these rooms. Normal routine maintenance of these features and normal building heating systems should provide adequate freeze protection.

No violations or deviations were identified.