



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

Report No. 50-364/80-13

Licensee: Alabama Power Company
600 North 18th Street
Birmingham, AL 35202

Facility Name: Farley

Docket No. 50-364

License No. CPR-86

Inspection at Farley site near Ashford, Alabama

Inspector: *E. H. Brooks* 6-26-80
E. H. Brooks Date Signed

Approved by: *C. M. Upright* 6/26/80
C. M. Upright, Acting Section Chief, RONS Branch Date Signed

SUMMARY

Inspection on May 30 - June 4, 1980.

Areas Inspected

This announced inspection involved 50 inspector-hours on site in the area of containment integrated leakage rate testing.

Results

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

DETAILS

1. Persons Contacted

Licensee Employees

- *G. Hairston, Plant Manager
- *D. Mansfield, Startup Superintendent
- *L. Ward, Startup Supervisor
- *M. Harbour, Quality Assurance Engineer
- *D. Morey, Operations Superintendent
- *W. Shipman, Maintenance Superintendent

Other Organizations

Bechtel Corp.

- M. Downs H. Wilkerson
- R. Rowley R. Blum
- M. Burgess H. Hill
- L. Young

NRC Resident Inspectors

- *W. Bradford
- *J. Mulkey

*Attended exit interview.

2. Exit Interview

The inspection scope and findings were summarized on June 3, 1980 with those persons indicated in paragraph 1 above.

3. Licensee Action on Previous Inspection Findings

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Containment Integrated Leakage Rate Testing (CILRT) - Unit 2

The inspector reviewed the licensee's Containment Integrated Leakage Rate Test procedure 059-5-003, Revision 0. The procedure was prepared by Bechtel Corp. dated March 20, 1980 and approved by Alabama Power Company April 29, 1980. The procedure includes test acceptance criteria, system lineups with check lists and a description of the leakage rate measurement system and containment pressurization system. Additional information related to the containment integrated leakage rate test (CILRT) is appended to the procedure.

Prior to the containment integrated leakage rate test, the inspector observed the depressurization phase of the containment structural integrity test. During this period, audible leakage from two containment electrical penetrations was discovered by the licensee. Further investigation and local testing of the electrical penetrations revealed that the leakage was not occurring through leak paths in the containment penetrations per se, but through the internals of the electrical cables which pass through the penetrations. Six penetrations (3 redundant) are designed to accommodate 3 electrical cables each which provide power to 3 reactor coolant pumps. Of 18 cables, 3 were determined to be leaking (a fourth "leaker" was identified upon completion of the CILRT).

In order to proceed with the CILRT the licensee fabricated and installed test covers on the 2 leaking penetrations inside the containment. Test connections were provided on the covers to permit local testing of the penetrations to simulate the CILRT test pressure on the penetrations and thereby measure any leakage to be subsequently added to the total calculated containment leakage rate.

Prior to pressurizing the containment for the ILRT, the inspector observed the valve lineup conducted by the licensee on the component cooling water system. Containment pressurization was initiated on June 3, 1980 and 26 psig pressure was achieved at approximately 0200 hours on June 4, 1980. After a stabilization period of approximately 6 hours, the reduced pressure integrated leakage rate test was started. Changes in the service water supply to the containment fan coolers caused perturbations in the leak rate test data. As a result, the starting time for a 24-hour test was 1545 hours. Upon completion of the 24-hour test, the following computer program printout was obtained:

Calculated leakage rate = 0.034%/24 hours
Upper 95% confidence limit = 0.037%/24 hours
Maximum allowable leakage rate = 0.106%/24 hours
75% of maximum allowable leakage rate = 0.079%/24 hours

The acceptance criteria for the ILRT at reduced pressure requires that the upper bound of the leakage rate calculated at 95% confidence level plus any required local leakage rate additions shall be less than 75% of maximum allowable leakage rate, i.e., $0.037 + \text{local leakage}$ shall be less than 0.079.

The inspector met with representatives of the licensee and Bechtel Corp. to review the plant systems lineup. Appendix J to 10CFR50 requires that portions of systems that are part of the reactor coolant pressure boundary, or closed systems inside containment that penetrate containment and rupture due to a LOCA, shall be vented to the containment atmosphere during the ILRT. Appendix J also states that those systems required to maintain the plant in a safe condition during to ILRT or systems normally filled with water and operating during a LOCA need not be vented. However, the isolation valves in these systems are required to be leak tested and the leakage rate added to the ILRT results. Subsequent to the valve lineup review, a list

of penetrations for which local leakage rate testing will be performed was tabulated. The total local leakage rate will be added to the ILRT test results. The list includes the following:

- a. Penetration 36 (D-205003, Sh. 1) - Relief valve PSV 3440C (Service Water inlet to Containment Cooler 2C) was removed and line blanked for ILRT. Type C test will be performed and leakage added to ILRT leakage.
- b. Penetration 60 (D-205003, Sh.2) - Relief valve PSV 3401 (Service Water inlet to Reactor Coolant Pump Motor Coolers) was removed and line blanked for ILRT. Type C test will be performed when valve reinstalled and leakage will be added to ILRT leakage.
- c. Penetration 32 (D-205003, Sh.2) - MOV 3134 (Service water return from RCP Motor Coolers) would not close fully before torquing out and was manually closed for ILRT. Type C test will be performed after resolving problem and leakage will be added to ILRT leakage.
- d. Penetration 103 (D-205019) - MOV 3530 (Inlet to Post Accident Ctmt Venting Filter) has internal leakage and was closed by hand for ILRT. Type C test will be performed after valve has been replaced and leakage will be added to ILRT leakage.
- e. Four Kv electrical penetrations EA01 (Q2T52A003-A) and EA10 (Q2T52A001-A) were capped inside containment following detection of conductor leakage during the SIT. Leakage through these penetrations will be measured following repair and will be added to ILRT leakage.
- f. Two new electrical penetration nozzles were installed but the modules were not available during ILRT (EC11 and WC08). Type B results will be added to ILRT leakage following module installation.
- g. Penetrations 67 and 61B (D-205019) (Ctmt Post LOCA Sample Lines) were used during ILRT for containment pressure monitoring and flow verification. Type C leakage will be added to ILRT leakage.
- h. Penetration 59 (D-205037, Sh.2) The relief valve discharge line from charging and RHR systems to the Pressurizer Relief Tank was in service for the ILRT. Type C leakage will be added to the ILRT leakage.

An integrated leakage rate interim report including the results of the ILRT at peak containment pressure (48 psig) was transmitted to the NRC Region II office. The leakage rates and acceptance criteria are as follows:

Calculated Leakage Rate	0.055%/day
Upper 95% Confidence Level	0.060%/day
Maximum Allowable Leakage Rate	0.150%/day
75% of Maximum Allowable Leakage Rate	0.113%/day

As with the reduced pressure ILRT, total local leakage rates must be added to the upper 95% confidence level (0.060%/day).

The results of the ILRT including the adjustments as required for local leakage rate testing will be submitted in a test report to the Commission. Proposed repair or modification and testing of leaking electrical cables as discussed in this report is considered to be an open item for future inspection subject to adequate resolution of the problem by the licensee. Open item: (50-364/80-13-01).