



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

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Report No. 50-259/80-08, 50-260/80-08, and 50-296/80-08

Licensee: Tennessee Vally Authority
500A Chestnut Street
Chattanooga, Tennessee 37401

Facility Name: Browns Ferry

Docket Nos. 50-259, 50-260, and 50-296

License Nos. DPR-33, DPR-52, and DPR-68

Inspection at Browns Ferry site near Athens, Alabama

Inspector: Herbert J. Whitener 3/28/80
H. L. Whitener Date Signed

Approved by: C. M. Upright 3/28/80
C. M. Upright, Acting Chief, RONS Branch Date Signed

SUMMARY

Inspection on February 19-24, 1980

Areas Inspected

This routine, announced inspection involved 59 inspector-hours on site in the areas of witnessing the integrated leak rate testing on Unit 1.

Results

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



DETAILS

1. Persons Contacted

Licensee Employees

J. Harness, Assistant Plant Manager

K. Clark

*R. Butcher, Test Director

Other licensee employees contacted included integrated leak rate test personnel.

NRC Resident Inspector

R. Sullivan, Senior Resident Inspector

J. Chase, Resident Inspector

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on March 24, 1980 with those persons indicated in paragraph 1 above. The inspector stated that the integrated leak rate test results appeared to be acceptable.

3. Licensee Action on Previous Inspection Findings

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Containment Integrated Leak Rate Test

The inspector witnessed performance of the primary containment integrated leak rate test (ILRT) to determine that the test was conducted in accordance with the requirements of Appendix J to 10 CFR 50, ANSI N45.4, FSAR Section 5, and test procedure SI 4.7.A.2. Selected sampling of the licensee's activities which were inspected included: (1) review of SI 4.7.A.2 to verify that the test procedure was properly approved and conformed to regulatory requirements; (2) observation of test performance to determine test prerequisites were completed, special equipment was installed and calibrated and that appropriate data were recorded and analyzed and (3) preliminary evaluation of leakage rate test results to verify that leak rate limits were met. Pertinent aspects of the test are discussed in the following paragraphs.

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6. General Observations

The inspector witnessed and/or reviewed portions of the test preparation, containment pressurization, temperature stabilization, leak chasing, and data processing in the period February 19-24, 1980. The following items were noted:

- a. The test was conducted in accordance with an approved procedure maintained at the test control center.
- b. A sampling of test prerequisites was reviewed and found to be completed. Personnel airlocks were tested prior to starting pressurization.
- c. A sampling of plant systems required to maintain test control was reviewed and found to be in service as required.
- d. A sampling of penetration valve alignments was reviewed to verify that the requirements of paragraph III.A.1(d) of Appendix J to 10 CFR 50 were addressed.
- e. A sampling of special test instrumentation was reviewed and found to be installed and calibrated. Instrument checks were performed prior to the test.
- f. Data required for the performance of the containment leak rate calculation were recorded at 10 minute intervals. Data were assembled and retained for final analysis and evaluation.
- g. Problems encountered during the test were described in the test event log.

With regard to items c and d above, the inspector noted that some of the systems identified as necessary to maintain safe shutdown of the reactor and therefore, not vented and drained, would be exposed to containment atmosphere after a design basis accident. A NRC position issued October 25, 1977 stated that if the venting and draining of any system potentially jeopardizes the maintenance of a safe-shutdown condition, then those systems shall not be vented and drained; however, in this event, the local leakage rates (Type C) for the isolation valves in these systems shall be added to the upper 95% confidence limit of the ILRT before determining the acceptability of the test. The licensee does not currently add the Type C leakage measurements for those systems in use to the ILRT results. This matter will be reviewed by licensee management and is identified for future inspection (259/80-08-01).

7. Integrated Leak Rate Test Performance

a. Method

The licensee performed the integrated leak rate test using the mass plot method for a minimum of 24 hours of data at one half of design



pressure. Temperature and pressure data are analyzed based on a two volume, torus and drywell, model. Mass losses for the two volumes are summed and the statistical 95% upper confidence limit calculated based on a linear regression analysis.

b. Test Results

Temperature stabilization was achieved within four hours of reaching a nominal test pressure of 40 psia and the test was officially initiated on February 21, 1980. The leak rate initially trended downward and stabilized at about 0.67 percent per day which is well below the allowable leak rate of 1.06 percent per day. The supplemental test was within 12% agreement with the measured leak rate.

c. Problems Encountered

At about 22 hours into the ILRT, the licensee lowered the water level four inches in the torus in order to remain within Technical Specification limits. This sudden change caused a perturbation in the measured parameters and resulted in extending the test time by about 26 hours until the leak rate had recovered to 0.67 percent per day with a slight downward trend.

