



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

Report Nos. 50-259/82-09, 50-260/82-09 and 50-296/82-09

Licensee: Tennessee Valley Authority
500A Chestnut Street Tower II
Chattanooga, TN 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 Plant site near Decatur, Alabama

Inspector: H. L. Whitener 4/7/82
H. L. Whitener Date Signed

Approved by: H. L. Whitener / for 4/7/82
F. Jape, Section Chief Date Signed
Engineering Inspection Branch
Division of Engineering and Technical Programs

SUMMARY

Inspection on March 19-23, 1982

Areas Inspected

This routine, announced inspection involved 41 inspector-hours on site in the areas of integrated leak rate testing, pipe support systems and followup inspection items.

Results

Of the three areas inspected, no violations or deviations were identified.

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

*G. Jones, Plant Manager
K. Clark, Supervisor, Containment Test Section
J. Denny, Test Director
C. Miller, Test Director
M. Cutlip, Night Test Director
T. Kerr, Engineering Aide

NRC Resident Inspector

J. Chase
*G. Paulk

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on March 23, 1982, with those persons indicated in paragraph 1 above.

3. Licensee Action on Previous Inspection Findings

Closed: Infraction (296/79-38-03) concerned the use of a temporary control rod drive (CRD) hatch cover during the containment integrated leak rate test. The temporary cover is later replaced by the permanent cover and only a seal leak rate test performed. The licensee verified the adequacy of the CRD hatch installation procedure during a subsequent integrated leak rate test on Unit 1. Also, the temporary hatch cover is no longer used. This matter is considered closed.

Closed: Unresolved Item (296/78-30-03) concerned the insertion of grease into hydraulic fluid fill fittings on Bergen-Paterson snubber reservoirs. This problem is known to have occurred on both Units 2 and 3. The inspector reviewed documentation which showed that all Bergen-Paterson snubbers in all three Units have been inspected for grease by removing the fittings and checking inside the reservoirs. Also a protective ring has been installed on all fittings which prevents insertions of grease through the reservoir fittings. This item is resolved.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Containment Integrated Leak Rate Test

A Region Specialist in conjunction with the Resident 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, ILRT procedure and Technical Specification. Selected sampling of the licensee's activities which were inspected included: (1) review of the test procedure to verify that the 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.

a. General Observation

The inspectors witnessed and reviewed portions of the test preparation, containment pressurization, temperature stabilization and data processing during the period of March 19-23, 1982. The inspector's findings in these areas are as follows:

- (1) The test was conducted in accordance with an approved procedure maintained at the test control center.
- (2) A sampling of test prerequisites was reviewed and found completed.
- (3) A sampling of plant systems required to maintain test control was reviewed and found completed.
- (4) Special instrumentation was reviewed and found installed and calibrated.
- (5) Venting and draining of specific systems were reviewed and found completed.
- (6) Data required for the performance of the containment leak rate calculations were recorded at 15 minute intervals.
- (7) Problems encountered during the test were described in the test event log.
- (8) Certain pressurized gas sources were reviewed for proper isolation and venting to preclude in-leakage or interference of out-leakage through containment isolation valves.
- (9) A sampling of valve positions were observed to verify conformance to procedure valve alignment.

- (10) Temperature, pressure, dew point and flow data were recorded, assembled and retained for final evaluation and analysis. A final ILRT report will be submitted to the Office of Nuclear Reactor Regulation.

No problems were identified in review of the above items.

b. Integrated Leak Rate Test Performance

(1) Method

The containment leak rate was determined by the mass point analysis and linear regression techniques on a minimum of 24 hours of data recorded at 15 minute intervals. Containment pressure was full accident pressure (64 psia). A statistical 95% upper confidence limit (UCL) was calculated.

(2) Test Description and Results

The required four hour temperature stabilization was successfully completed at 9:38 p.m. March 20. Air absorption and redistribution appeared stable so the 24 hour data run was initiated. The 24 hour run was successfully completed at 9:38 p.m., March 21. Measured values were as follows:

Lam, measured leakage rate	0.322 wt.% per day
95% confidence interval	0.006 wt.% per day
UCL, Ltm + 95% confidence interval	0.328 wt.% per day
0.75 La acceptance limit	1.5 wt.% per day

The UCL is well within the acceptance limit.

(3) Supplemental Test

Appendix J requires that a supplemental test be performed to verify the accuracy of the Type A test and the ability of the ILRT instrumentation to measure a change in leak rate. A known leak rate (L_o) is imposed on the containment and the measured composite leak rate (L_c) must equal, within $\pm 0.25 L_a$, the sum of the measured leak rate (L_m) plus the known leak rate (L_o). The acceptance criteria is expressed as $L_o + L_m - 0.25L_a \leq L_c \leq L_o + L_m + 0.25L_a$.

Results from the supplemental test were as follows:

Lo	imposed leak	=	1.685 wt.% per day
Lam	measured leak rate (24 hour)	=	0.322 wt.% per day
0.25La	(0.25 X 2.0%)	=	0.5 wt.% per day
Lc	measured composite leak rate	=	1.79 wt.% per day

Substituting these values into the acceptance criteria shows that Lc meets the specified limits of $1.5\% \leq 1.79\% \leq 2.5\%$.

6. Followup Inspection Items

a. IFI (259-260-296/79-38-01)

Closed: Inspection Followup Item (259-260-296/79-38-01) concerned the reactor building access door interlock which allowed both the inner and outer door to be opened at the same time. This can result in a breach of secondary containment. The licensee has installed a key card locking device which prevents opening both doors at the same time. This item is closed.

b. Outstanding Item (80-SB-01)

Closed: Outstanding Item (80-SB-01) concerned a survey to determine if International Nuclear Safeguard Corporation (INC) snubbers were installed on safety systems at licensed reactor facilities in Region II. A history of INC snubber failures and a lack of regulations requiring inspection and testing of mechanical snubbers prompted the NRC concern as to the operability of these snubbers. IEB 81-01 now tracks the operability of mechanical snubbers. In addition, requirements for verification of the operability of mechanical snubbers are being incorporated into facility Technical Specifications. This item is closed.