

UNITED STATES NUCLEAR REGULATORY COMMISSION REGION II 101 MARIETTA STREET, N.W., SUITE 2900 ATLANTA, GEORGIA 30323-0199

Report Nos.: 50-259/95-08, 50-260/95-08, and 50-296/95-08

Licensee: Tennessee Valley Authority 3B Lookout Place 1101 Market Street Chattanooga, TN 37402-2801

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

Facility Name: Browns Ferry 1, 2, and 3

Inspection Conducted: February 13 - 17, 1995

Inspector: J.R. Wiseman

Accompanying Inspector: H. Whitener

Approved by:

Casto, Chief Test Programs Section

Test Programs Section Engineering Branch Division of Reactor Safety License Nos.: DPR-33, DPR-52, and DPR-68

2/28/95

Signed

SUMMARY

Scope:

This routine, announced inspection was conducted in the areas of engineering and technical support of the 10 CFR 50, Appendix J, Containment Leak Rate Program and related plant modifications as part of the Restart Test Program (RTP). (IP 37550 and IP 6172C)

Results:

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Within the area examined no violations or deviations were identified.

The inspection resulted in the following assessments of the Containment Leak Rate Test Program, the Restart Test Program and engineering design modification configuration control:

Enclosure

The inspectors' review of the Browns Ferry Unit 3 Containment Leak Rate Test Program indicated that the administrative controls and procedures in place were satisfactory. The program accurately reflected the required Appendix J testing requirements.

Containment leak rate RTP test procedures were being developed based on approved Unit 2 procedures accounting for Unit 3 plant configuration differences and modifications. Test procedures were not yet issued and were awaiting completion of all test inputs. The current schedule for issuance of the Local Leak Rate Test (LLRT) procedures was May 1995 and September 1995 for the Integrated Leak Rate Test (ILRT) procedures. The NRC review of test procedures and the performance of testing will be addressed during future NRC inspections.

Verification of each Residual Heat Removal (RHR), High Pressure Core Injection (HPCI), and Core Spray (CS) system configuration and changes to components during the inspectors' walk-downs of Unit 3 containment penetrations confirmed the as-built status of the control flow diagrams and piping drawings. The inspectors validated that the DCN packages were included in the System Test Specifications (STS) from which the Restart Test Program test instructions are generated.

The completed modifications reviewed were adequately implemented. The Design Change Notices effectively addressed the plant Containment leak rate testing issues and commitments. The modification packages and equipment installation was well controlled and documented. Persons Contacted

1.

Licensee Employees

*D. Burrell, Lead Electrical Engineer
B. Crouch, Unit 3 Mechanical/Nuclear Project Engineer
*C. Hsieh, Site Licensing
*L. Hatton, Manager, Outage
*J. Johnson, Manager, Site Quality
J. Lewis, Manager, Restart Test
*D. Matherly, Acting Manager, Operations
*J. McCarthy, Manager, Recovery Engineering
*G. Pierce, Technical Support
K. Pinson, Restart Test Engineer
D. Stewart, Mechanical and Nuclear Engineering
*J. Valente, Unit 3 Engineering
*P. Wagner, Manager, Compliance and Modifications
*R. Wells, Manager, Engineering and Materials

Other licensee employees contacted during this inspection included engineers, operators, craf.smen, and administrative personnel.

NRC Resident Inspectors

*L. Wert, Senior Resident Inspector *J. Monday, Resident Inspector *R. Musser, Resident Inspector

*Attended exit meeting

2. Containment Leak Rate Test Program (IP 61720)

In March 1985 Browns Ferry Unit 1 was shutdown due to identified problems in the containment leak rate test program. An engineering evaluation of the program based on Appendix J requirements followed. Numerous components were identified as not being tested or were inadequately tested. The licensee's review continued and resulted in a Containment Leak Rate Program for corrective action and isolation valve testing. The Tennessee Valley Authority (TVA) program was presented to the NRC in August 1985.

During this inspection, the inspectors reviewed selected Site Standard Practices (SSP), Baseline Test Requirement Documents (BTRD), Engineering Program control procedures, and Startup Test Manual (STM) procedures relative to the Unit 3 RTP to determine the adequacy of the controls governing the testing process. The following documentation was reviewed:

> Site Standard Practice SSP-8.3, Modification Test Programs, Revision 7, dated 12/02/94.

Site Standard Practice SSP-8.7, Containment Leak Rate Programs, Revision 7, dated 12/02/94.

* Site Standard Practice SSP-12.55, Unit 3 System Pre-Operability Checklist (SPOC), Revision 9, dated 02/08/95.

3-BFN-BTRD-064A, Revision 0, dated 04/28/1993, identified the functional testing for the Primary Containment (PC) System (064A). The document identified the functional testing for the system and demonstrate conformance to the safe shutdown design requirements as defined in the Safe Shutdown Analysis (SSA).

3-BFN-BTRD-064D, Revision 0, dated 04/12/1993, identified the functional testing for the Primary Containment Isolation (PCIS) System (064D). The document identified the functional testing for the system and demonstrate conformance to the safe shutdown design requirements as defined in the Safe Shutdown Analysis (SSA).

- 3-BFN-BTRD-073, Revision 0, dated 06/16/1993, identified the functional testing for the HPCI System (073). The document identified the functional testing for the system and demonstrate conformance to the safe shutdown design requirements as defined in the SSA.
- 3-BFN-dTRD-074, Revision 0, dated 06/15/1993, identified the functional testing for the RHR System (074). This document identified the functional testing for the system and demonstrate conformance to the safe shutdown design requirements as defined in the SSA.
- BFEP PI 88-07, System Plant Acceptance Evaluation (SPAE), Revision 13, 1/1/1995.

From this review, the inspectors concluded that the Browns Ferry Unit 3 containment leak rate test program accurately reflected the required Appendix J testing requirements. The containment leak rate test procedures being developed by the plant Technical Support Engineering organization are based on approved existing Unit 2 procedures accounting for Unit 3 plant configuration differences and modifications. The required test procedures are not yet issued and are awaiting completion of all test inputs. The current schedule for issuance of the Local Leak Rate Test (LLRT) instructions was May 1995, and September 1995, for the Integrated Leak Rate (ILRT) test instructions.

Design Changes and Plant Modifications (IP 37550)

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The Nku inspectors reviewed six Design Change Notice (DCN) packages associated with corrective actions for identified Unit 3 containment leak mate testing deficiencies. The Design Change Notice packages reviewed were:

- W17937 Added 2-inch block valves (3-HCV-84-37 and -38) and test connections for forward flow LLRT of (System 84) Containment Atmosphere Dilution (CAD) Supply Valves (3-FSV-84-8A, -8B, -8C, and -8D) shown on drawing 3-47E862-1, Revision 11.
- W18234 Cut, capped, and abandoned-in-place the Unit 3 RHR (System 74) vent line (at containment penetration X-216) and associated Primary Containment Isolation Valves (3-FCV-74-102, -103, -119, and -120) to eliminate need for local leak rate testing on piping no longer needed for plant operation as shown on drawing 3-47E811-1, Revision 21.
- W18341 Added 8-inch block valves (3-ISV-70-314 and -318) and test connections for LLRT of (System 70) Reactor Building Closed Cooling Water (RBCCW) supply valves (3-FCV-70-47 and 3-CKV-70-506) shown on drawing 47E822-1, Revision 17.
- W23575 Added 4-inch block valve (3-SHV-73-654) and test connections for LLRT of (System 73) High Pressure Core Injection (HPCI) minimum flow bypass line valve (3-FCV-73-30) shown on drawing for 47E812-1, Revision 11.
- W24184 Added 2-inch block valves (3-SHV-74-831 and -832) and test connections for LLRT of (System 74) Residual Heat Removal (RHR) tie to the Pressure Suppression Chamber (PSC) Head Tank check valves (3-CKV-74-792, -802, -803 and -804) shown on drawing 3-47E811-1, Revision 21.
- W24185 Added 2-inch block valves (3-SHV-75-649 and -650) and test connections for testing of (System 75) Core Spray (CS) Pressure Suppression Chamber (PSC) Head Tank tie check valves (3-CKV-75-606, -607, -609 and -610) for Unit 3 "keep fill" function as shown on drawing 47E-814-1, Revision 12.

The inspectors performed walkdown inspections of the containment penetrations for the Unit 3 RHR, HPCI, and CS systems associated with the above DCNs to determine if the modified 10 CFR 50, Appendix J, LLRT test alignment hardware was installed in accordance with design requirements. The inspectors examined the following items during the inspection: capped RHR piping at the torus penetration and abandoned-inplace RHR valves (DCN W18234); new LLRT isolation block valves and locations; block valve tagging and positions; test connection locations; and, test valve tag numbers (as indicated by valve tags).

The inspectors verified the added isolation block valves and test connections had been installed in accordance with the design requirements specified in the DCN packages, piping drawings, and control flow diagrams. No discrepancies were identified. System Test Specifications (STS) for the PC (3-STS-064A), PCSI (3-STS-064D), and RHR (3-STS-074) systems were reviewed to determine whether the scope of testing included the design changes and plant modifications noted above. The inspectors validated the DCN packages were included in the System Test Specifications (STS) from which the Restart Test Program test instructions are to be generated.

The inspectors concluded that the completed modifications reviewed were adequately implemented. The Design Change Notices effectively addressed the plant Containment leak rate testing issues and commitments. The modification packages and plant hardware installation was well controlled and documented. The functional testing for safety system operation affected by the plant modifications had been incorporated into the restart test program.

No violations or deviations were identified.

4. Exit Interview

The inspection scope and results were summarized on February 17, 1995, with those persons indicated in paragraph 1. The inspectors described the areas inspected and discussed in detail the inspection results. Proprietary information is not contained in this report. Dissenting comments were not received from the licensee.

5. Acronyms and Initialisms

BFEP	Browns Ferry Engineering Project
BFN	Browns Ferry Nuclear Plant
BTRD	Baseline Test Requirement Document
CFR	Code of Federal Regulations
CS	Core Spray System
DCN	Design Change Notice
HPCI	High Pressure Core Injection
ILRT	Integrated Leak Rate Test
IP	Inspection Procedure
LLRT	Local Leak Rate Test
NRC	Nuclear Regulatory Commission
PCIS	Primary Containment Isolation System
PSC	Pressure Suppression Chamber
RBCCW	Reactor Building Closed Cooling Water
RHR	Residual Heat Removal
RTP	Restart Test Program
SPAE	System Plant Acceptance Evaluation
SPOC	System Pre-Operability Checklist
SSA	Safe Shutdown Analysis
SSP	Site Standard Practice
STS	System Test Specifications
TVA	Tennessee Valley Authority