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

Report Nos.: 50-259/90-11, 50-260/90-11, and 50-296/90-11

Licensee: Tennessee Valley Authority
6N 38A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Docket Nos.: 50-259, 50-260 and 50-296 License Nos.: DPR-33, DPR-52, and DPR-68

Facility Name: Browns Ferry 1, 2, and 3

Inspection Conducted: April 16-18, 1990

Inspector: J E Conlon for 5-8-90
J. R. Harris Date Signed

Accompanying Personnel: R. Wescott

Approved by: J E Conlon 5-8-90
T. Conlon, Chief Date Signed
Plant Systems Section
Engineering Branch
Division of Reactor Safety

SUMMARY

Scope:

This routine, announced inspection was conducted in the areas of Appendix R Issues identified during an inspection on May 1-5, 1989 and July 17-21, 1989 by R. Wescott, W. Miller and D. Notely.

Results:

In the areas inspected, violations or deviations were not identified.

This inspection covered followup on issues identified during the above inspection dates. Review of items identified during the above dates indicated that proper corrective actions were taken on these items.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*R. Abbas, Fire Protection
*C. Anderson, Special Project Engineer
*S. Austin, Compliance Licensing
*H. Crisler, Project Management, Manager
*T. Davis, Fire Protection Engineer
*R. Erickson, Technical Support
*P. Ebersol, Mechanical Engineer, Operations
*J. Gomez, Electrical Engineering
*R. Hare, Nuclear Construction
*J. Kern, Supervisor, Fire Protection Systems
*C. Massey, Project Manager, Appendix R
*L. Myers, Plant Manager
*S. Patterson, Nuclear Construction
*R. Robinson, Nuclear Construction
*D. Zeringue, Site Director

NRC Resident Inspectors

*D. Carpenter, NRC Site Manager
*E. Christnot, NRC Resident Inspector

*Attended exit interview

2. Action on Previous Inspection Findings (92701 and 92702)

a. (Closed) Inspector Followup Item 50-259, 260, 296/89-13-01 - Correction to Sheet SS of Appendix R. Cable listing with respect to the status of valve 2PCV 69-14. Work on this item was completed in June 1989. This item is closed.

b. (Closed) Inspector Followup Item 50-259, 260, 296/89-13-03 - HVAC requirements were not documented in the post fire instructions. The licensee has developed procedure no. MMI 153, "Temporary Ventilation for the Electrical Equipment Rooms". This procedure outlines the requirements for compensatory measures required to ensure the operability of equipment in the electrical equipment room following the occurrence of an Appendix R fire event. This procedure is implemented by procedure EPIP-21, "Fire Emergency Procedure," which directs activities after staffing of the Technical and Operations Support Centers due to an Appendix R fire event. This procedure was not made a part

of the Safe Shutdown Instructions (SSIs) because of the allowable delay between the initial Appendix R related manual actions and the implementation of temporary ventilation measures. The inspectors consider this procedure and its method of implementation adequate to meet NRC concerns. This item is closed.

c. (Closed) Inspector Followup Item 50-259, 260, 296/89-13-04 - Apparent lack of coordination between the main fuse upstream of the main circuit breaker in TVA calculation ED-Q2000-870550, curve DC-4, because the limiting fault currents for the fuse and breaker were not shown on the curve. The licensee revised calculation ED-Q2000-870550 to show the maximum fault current on breaker-fuse coordination curves. This adequately addresses the concerns of the inspectors. This item is closed.

d. (Closed) Inspector Followup Item 50-259, 260, 296/89-13-06 - Circuit breaker settings required in ED-Q000-87077, dated January 13, 1989, had not been implemented. There did not appear to be any mechanism in place to assure implementation of these modifications. The licensee revised existing DCNs W0901C and W6811A to show the required trip settings. These modifications will be completed as part of the electrical issues project. In addition, the licensee demonstrated that the process of evaluating unverified assumptions (PI 89-06 Design Change Control) would have discovered the omission of the breaker settings in the DCNs. The revision of the DCN and the demonstration of the unverified assumption process adequately address the inspectors' concerns. This item is closed.

e. (Closed) Inspector Followup Item 50-259, 260, 296/89-13-08 - The SSIs did not clearly indicate a change in location to the operators performing the manual actions. The licensee has revised 2-SSI-001 (04) and 2-SSI-002 (02) to clearly indicate a change in location to the operator. These revisions adequately address the concerns of the inspectors. This item is closed.

f. (Closed) Inspector Followup Item 50-259, 260, 296/89-13-10 - Modifications to the SSI and Volume I of the Appendix R Engineering Evaluations had been identified by TVA but not incorporated into the documents. The licensee has revised 2-SSI-001 (04) and 2-SSI-002 (02) to incorporate the modifications identified. These revisions adequately address the concern of the inspectors. This item is closed.

g. (Closed) Unresolved Item 50-259, 260, 296/89-28-01 - Potential failure to meet Section III.G.1 of 10 CFR 50 Appendix R in that the walls separating fire areas 17, 18, and 19 from fire area 16 do not have the required fire rating. The licensee has added additional layers of gypsum board to the existing gypsum board covered sheet metal panels. This raised the fire rating of the barrier to one hour. The licensee also replaced the doors in the barrier with rated fire doors. The completed modification was inspected and found to be adequate. This item is closed.

h. (Closed) Inspector Followup Item 50-259, 260, 296/89-28-02 - Conduit and cable reroute and wrap modifications were not complete. The licensee presented documentation that work had been completed under ECN/DCNs P0753, P0807, P0808, P0887, P0889, P0953, P5289, P7144, P7215, W4487, W4702, W4951, and W6845. The inspectors reviewed work packages for ECN P5289 (Replacement of cable 2ES2546-II and addition of new cable 2ES202-IS2), DCN W4951A (Modification of internal and external wiring for 480V RMOV BD 2D, compartment 2C, and wiring to modify circuitry for 2-FCV-74-53), and DCN W6845A (Rerouting/Replacement of cable/conduit #2ES642-I) and found these packages to be complete. This item is closed.

i. (Closed) Inspector Followup Item 50-259, 260, 296/89-28-03 - Seals for electrical raceways and mechanical fire barrier penetrations were not completed. The licensee presented documentation that penetration seals were installed on ECN/DCNs P0886, P0899, P0900, P0920, P0921, W4418, W5276, and W5784. The inspectors reviewed work packages WP-2000-87 (Installation of permanent plant identification markings to electrical, mechanical, and HVAC penetrations, WP-0026-89 (Installation of fire seals in walls and ceiling joints) and WP-2066-90 (Modification of supports for the auxiliary boiler condensate return line in the Unit 2 Reactor Building) and found these packages to be complete. The inspectors also examined the licensee's penetration seal tracking program and determined that it was functioning properly and being adequately updated. This item is closed.

j. (Closed) Inspector Followup Item 50-259, 260, 296/89-28-04 - Emergency lighting installation had not been completed. The licensee presented documentation that emergency lighting was installed on ECN/DCNs P0479, P0819, W1454, W1455, W4398, W4505 and W5737. The inspectors reviewed work packages WP-0010-89 (Reworking of circuits feeding some of the existing emergency lighting units - Unit 2, RB el 565 & 593, CB el 593 & 621), WP-0011-89 (Installation and support of additional emergency lighting units - Unit 3, RB el 565, 621 & 639),

and WP-0012-89 (Reworking of circuits feeding some of the existing emergency lighting units - Unit 3 RB el 565, 621, & 639) and found these packages to be complete. In addition, the inspectors reviewed Post Modification Test (PMT) 150 which tested the performance of the lights and battery packages under an eight hour loss of power condition. The testing was found to be sufficient and this item is closed.

k. (Closed) Inspector Followup Item 50-259, 260, 296/89-28-05 - Modifications to fire doors and dampers had not been completed. The licensee presented documentation that fire doors and dampers for Appendix R were completed on ECN/DCNs P0879, P0870, P0871, P0872, P0873, P0874, P0875, and P0877. The inspectors reviewed work packages WP-2170-86 (Replacement of doors in accordance with MAI-42, drawing 46W454-22 and MAI-4) and WP-2171-86 (Replacement of fire doors #812 and #825 in the Diesel Generator Building) and found these packages to be complete. This item is closed.

l. (Closed) Inspector Followup Item 50-259, 260, 296/89-28-06 - Modifications for automatic sprinkler and detection systems had not been completed. The licensee presented documentation that the Appendix R fire suppression and detection modifications were completed on ECN/DCNs P0885, W5007, P0761, P0894, P0895, P0896, P0897, P0898, P7169, P7170, P7171, P7067, W1489, W1491, W4766 and W4767. The inspectors reviewed work packages WP-2014-87, (Installation of conduit, detectors and pull and terminate cables for Unit 2 el 565 Reactor Building) and WP-2044-89 (Replacement of sprinkler heads and modification of piping to raise the sprinkler heads to the proper elevation and add new sprinkler heads on el 621) and found these packages to be complete. In addition, the inspectors reviewed WP-2050-89 which documented the hydrotesting of the system as required by NFPA 13 and found it to be complete. The inspectors also reviewed work packages WP-2136-89 and WP-2141-89 regarding air supervision on the Reactor Building preaction sprinkler system and found them to be complete. This item is closed.

m. (Closed) Inspector Followup Item 50-259, 260, 296/89-38-02 - Proper Installation of Fire Seals.

The item was identified when the inspectors toured areas of the plant to observe the condition of the fire barrier penetrations and requested to review the QC inspection records for the fire seals on the wall between the Unit 1/Unit 2 reactor and turbine buildings, near the turnstiles, at the 565' elevation. The records were not provided by the licensee prior to the end of the inspection. The inspectors reviewed procedures MAI-62 and

MAI-22, both titled Mechanical Penetration Seals Identification, Repair, and Inspection. The inspectors noted that MAI 2.2 replaced MAI 62 on September 28, 1988. Both procedures contain directions for the installing of seals, the identification of seals, and the inspection of seals. The procedure clearly indicated at what step of the procedure a holdpoint was required.

The inspectors also reviewed four completed Attachment 9s of the procedures, titled, Penetration Inspection Report, and noted that all attributes were signed off for the eight seals questioned by the inspectors. This item is closed.

n. (Closed) Violation 50-259, 260, 296/89-33-04 - Breach of Fire Rated Doors.

During a backshift plant tour the NRC inspectors identified two examples of breached fire doors. TS 3.11.G.1.a requires that "with one or more of the required fire-related assemblies and/or sealing devices inoperable, within one hour establish a continuous fire watch on at least one side of the affected assembly and/or sealing device or verify the operability of fire detectors on at least one side of the inoperable assembly or sealing device and establish a one hour fire watch patrol." Procedure FPP-2, Revision 3, "Fire Protection-Attachments", implements the above TS requirements. Per FPP-2, Attachment F, Fire Protection Equipment and Barrier Penetration Removal From Service Permit should have been completed and approved by the SOS prior to blocking the fire doors open. Additionally, step 5.7 of FPP-2, Attachment F requires that a copy of the permit shall be placed at the location of the impairment and step 5.0 requires compensatory measures to be in place, if required, before the impairment.

While on the tour, the NRC inspectors noted fire rated door 607 wedged open with two welding leads running down to the landing between Units 1 and 2 cable spreading rooms. The NRC inspectors while on the way to the ASOS to check the Attachment F printout observed fire rated door 455, located by the control bay elevator, wedged open. The Attachment F printout did not have either door listed as authorized to be impaired.

The NRC inspectors reviewed the licensee responses to the violation, dated September 25, 1989. In the response the licensee stated that the reason for door 455 being wedged open was the fact that the door knob was broken off. The knob was later found on top of a nearby emergency light cabinet. For door 607, the licensee stated that the foreman had intended to have the electricians run the welding leads to the door and not actually break the door.

The licensee stated that both cases involved a failure to follow procedures in that the person who discovered the defective knob did not notify the SOS and the electricians breached the door without an Attachment F.

The NRC inspectors reviewed the licensee corrective action and noted that all personnel involved were instructed as to what was required for the maintenance of fire doors and modification personnel reviewed the Root Cause Analysis of this event, ROA 89-64. This item is closed.

3. Exit Interview

The inspection scope and results were summarized on April 18, 1990, with those persons indicated in paragraph 1. The inspectors described the areas inspected and discussed in detail the inspection results. The licensee did not identify as proprietary any of the material provided to or reviewed by the inspector during this inspection.