



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

October 21, 1982

Report Nos. 50-259/82-33, 50-260/82-33, and 50-296/82-33

Licensee: Tennessee Valley Authority
 500A Chestnut Street
 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 site near Decatur, AL

Inspector: J. J. Blake
 for E. H. Girard

10/15/82
 Date Signed

Approved by: J. J. Blake
 J. J. Blake, Section Chief
 Engineering Inspection Branch
 Division of Engineering and Technical Programs

10/15/82
 Date Signed

SUMMARY

Inspection on September 28 - October 1, 1982

Areas Inspected

This routine, unannounced inspection involved 32 inspector-hours on site in the areas of licensee action on previous inspection enforcement matters, inservice testing, licensee event reports, and inspector followup items.

Results

Of the four areas inspected, no violations or deviations were identified in one area; two apparent violations were found in three areas (Inadequate nondestructive examination procedures - paragraphs 3.b, 3.c, and 7; Failure to maintain summary status lists and increase test frequency - paragraph 5.b).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

G. T. Jones, Plant Superintendent, Browns Ferry Nuclear Plant
*J. R. Pittman, Assistant Plant Superintendent
*E. R. Ennis, Assistant Plant Superintendent
*T. L. Chinn, Compliance Staff Supervisor
*L. H. Parvin, Assistant QA Supervisor
*C. T. Goodson, ISI Engineer
J. Fox, Metallurgical Engineer
R. McPherson, Lead Mechanical Engineer
P. Romine, Mechanical Engineer
R. Latimer, ISI Coordinator

NRC Resident Inspector

*J. W. Chase, Senior Resident Inspector
G. Paulk, Resident Inspector

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on October 1, 1982, with those persons indicated in paragraph 1 above. The licensee was informed of the inspection findings listed below. The licensee acknowledged the inspection findings with no dissenting comments.

Violation 259,260,296/82-33-01, Inadequate nondestructive examination Procedures, paragraphs 3.b, 3.c, and 7.

Violation 259,260,296/82-33-02, Failure to maintain summary lists and increase test frequency, paragraph 5.b.

Inspector Followup Item 259,269,296/82-33-04, Procedure specifies improper test frequency, paragraph 5.a.

3. Licensee Action on Previous Enforcement Matters

a. (Closed) Violation (259,260,296/81-13-02): Document Control. This item involved the licensee's failure to provide controlled copies of nondestructive examination (NDE) procedures to QC supervisory and inspection personnel required to use the procedures. The licensee's letter of response for this item, dated August 31, 1981, was reviewed and determined acceptable by Region II. The inspector held discussions

with the Assistant QA Supervisor and with document control personnel and examined the corrective actions as stated in the letter of response. The inspector concluded that the licensee had determined the full extent of the subject noncompliance, performed the necessary survey and followup actions to correct the present conditions, and developed the necessary corrective actions to preclude recurrence of similar circumstances. The corrective action identified in the letter of response has been implemented.

- b. (Closed) Unresolved Item (259,260,296/81-36-01): CRT screen extremity used for examination calibration point. This item documents an inspector's procedure review finding that for material thicknesses of 2 to 2½ inches, ultrasonic examination procedure N-UT-4 R2 provides a calibration that could result in OD indications being missed because of an incomplete examination of the required metal volume.

As noted for this item in NRC Report 259,260,296/82-17, the licensee informed the inspector that the subject procedure would be corrected and re-issued by the outage that is now in progress. The inspector found that the procedure had not been corrected and that there was no apparent control which would assure against the procedure's use.

Procedure N-UT-4 R2 is intended for use in performance of inservice inspections and must comply with the applicable code specified by 10 CFR 50.55a(g), which is ASME Section XI (74S75). This code requires that the procedure examine the entire volume of metal contained beneath the surface to be examined. N-UT-4 fails to provide criteria which assures that the required metal volume is examined and this failure is considered to be an example of noncompliance with the requirements of 10 CFR 50, Appendix B, Criterion V, as implemented by Topical Report TR 75-01, paragraph 17.2.5. Other related examples of noncompliance are described in paragraphs 3.c and 7 below. The licensee was informed that these examples of noncompliance would be identified as violation 259,260,296/82-33-01, Inadequate nondestructive examination procedures.

- c. (Closed) Unresolved Item (259,260,296/82-22-01): Inadequate radiographic procedure. This item addresses an inspector's concern that the licensee's radiography procedure N-RT-1 R0, "Radiography Examination of Nuclear Power Plant Components", did not provide instructions that were appropriate to the circumstances in that:

- (1) Details of the following requirements for performance of radiography were not directly provided in the procedure, but instead were referenced to ASME Boiler and Pressure Vessel Code (the Code) Sections III and V:

Referenced to ASME Section V

- Maximum x-ray voltage
- Maximum source size
- Source to film distance
- Penetrameter placement
- Film quality
- Geometrical unsharpness

Referenced to ASME Section III

- Employment of penetrameters and shims
- Image quality requirements
- Acceptance standards

- (2) The revisions of the Code sections referenced by N-RT-1 were not identified.
- (3) Personnel performing the radiography indicated that they did not have ready access to the Code and indicated that they worked from memory.

The licensee's failure to provide appropriate instructions in N-RT-1 is an example of noncompliance with the requirements of 10 CFR 50, Appendix B, Criterion V, as implemented by Topical Report TR 75-01, Section 17.2.5. Two related examples of noncompliance found by NRC inspectors are described in paragraphs 3.b and 7. This noncompliance was identified to the licensee as violation 259,260,296/82-33-01, as already noted in 3.b, above.

NOTE: The licensee's inservice inspection (ISI) engineer had previously informed the inspector that N-RT-1 was not being used for radiography on safety-related piping at Browns Ferry, as was recorded in NRC report 259,260,296/82-22. The ISI engineer stated that the radiography was instead being performed to the contractor's procedure. In the inspection addressed herein, the inspector found that he had been misinformed. The contractor's radiography procedure was not approved for use at Browns Ferry and the licensee's Assistant QA Supervisor stated that radiography was being performed to N-RT-1.

- d. (Closed) Unresolved Item (259,260,296/82-32-03): Couplant pH determination. This item refers to a concern that the licensee's procedure required generic certification verifying a pH of six to eight for ultrasonic examination couplant, but the certification could not be located. The licensee has located a copy of the required certification and it was verified by the inspector. The matter is considered closed.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Inservice Testing (92706) - Units 1, 2, and 3

The inspector selectively reviewed the licensee's procedures and records for inservice testing (IST) of pumps and valves to verify compliance with NRC requirements*. The applicable code for IST, as specified by 10 CFR 50.55a(g), is ASME Section XI (74S75). The details of the review performed by the inspector are described in the following subparagraphs:

a. Procedures

The inspector reviewed the licensee's procedures for IST to verify compliance with Code requirements relative to the following:

- (1) Identification of pumps and valves subject to IST;
- (2) Identification of test parameters to be measured for pumps;
- (3) Categorization of valves to be tested into Code Categories A, B, C, D, and E;
- (4) Specification of test frequencies for pumps;
- (5) Specification of procedures for obtaining pump parameter reference values;
- (6) Specification of maximum stroke times for valves 73-5, 73-16, 73-30, 67-14, 67-18, 69-1, 69-2, 74-47, 74-48, 73-81, 67-48, 67-49, and 67-25;
- (7) Specification of test parameter reference values for Emergency Equipment Cooling Water (EECW) pumps and Reactor Heat Removal Service Water (RHRSW) pumps;
- (8) Specification of vibration testing for pumps;
- (9) Specification of checks of valve position indicators; and
- (10) Specification of requirements (for RHRSW and EECW pumps) for review of measured pump parameters and for changing test frequencies or declaring pumps inoperable.

*The licensee has submitted his IST program and requests for relief from Code requirements to the NRC for evaluation and approval. Issues already identified and being addressed in the NRC's evaluation of those submittals are not addressed by the inspection described herein.

Procedures reviewed relative to the above requirements were as follows:

- Surveillance Instruction (SI) 3.1, Inservice Pump Testing Required by ASME Section XI
- Surveillance Instruction 3.1.3, RHR SW Pump Performance
- Surveillance Instruction 3.1.4, EECW Pump Performance
- Surveillance Instruction 4.5.C, RHR Service Water System and Emergency Equipment Cooling Water System
- Mechanical Results Instruction No. 413, Vibration Monitoring - EECS and Other Safety Related Pumps
- Surveillance Instruction 3.2, Inservice Valve Testing
- Surveillance Instruction 3.2.1, Valves Cycled During Other Surveillance Instructions
- Surveillance Instruction 3.2.2, MOV Valves Cycled During Cold Shutdown
- Surveillance Instruction 3.2.10, Verification of Remote Position Indicators for ASME Section XI Valves

In reviewing SI 3.1, and SI 4.5.C, the inspector noted that although SI 3.1 specified the correct pump test frequency of the applicable code revision, SI 4.5.C specified the lower frequency permitted by a later Code edition (1980). The inspector found that the licensee was, except as described in b. below, utilizing the correct frequency in his testing. The licensee has submitted a request to change the Code revision that permits the frequency specified in SI 4.5.C. The licensee indicated that they expected to revise and correct their procedures as necessary based on the NRC's review of the proposed change in code revision. The inspector informed the licensee he would followup on the need for a procedural change and identified his concern for this area as inspector followup item 259,260,296/82-33-03, Procedure specifies improper test frequency.

b. Records

The inspector reviewed the licensee's records for IST to verify compliance with Code requirements as described below:

- (1) Proper test frequency, tests performed and valves recorded for 1982 for Category B valves 23-34, 23-40, 23-52, 67-48, and 67-49.
- (2) Proper test frequency, tests performed and valves recorded during 1982 for all RHRSW and EECW pumps.

(3) Proper verifications of remote position indications recorded during 1981 for the following valves:

- Unit 1

63-527
 All System 23
 All System 67
 All System 69

- Unit 3

67-48
 68-3
 68-79

(4) Summary lists maintained for pumps and valves which portray the current status of the testing.

(5) Increase in test frequency for EECW pump B-3 and RHRSW pump B-1, subsequent to obtaining Code "Alert Range" values in testing on 7/24/82 and 3/20/82, respectively.

The inspector found that the licensee did not have or maintain a summary status list ((4) above) of pumps or valves as required by IWP-6210 and IWV-6210 of ASME Section XI (74S75). The inspector further found that the licensee failed to increase test frequency as required for RHRSW pump B-1 and EECW pump B-3 ((5) above) in accordance with IWP-3230(a) of ASME Section XI (74S75). The licensee's failure to maintain the required listing and increase pump test frequencies in accordance with ASME Section XI are considered to be a violation of the requirements of 10 CFR 50.55a(g) which specifies that the licensee comply with ASME Section XI. This violation was identified to the licensee as item 259,260,296/82-33-02, Failure to maintain summary lists and increase test frequency.

Within the areas examined, no violations or deviations were identified except as reported in 5.b above.

6. Reportable Occurrence - Licensee Event Report - Unit 1

(Closed) Licensee Event Report (259/81-37): Reactor water cleanup system isolation valve. Revision 1 of the subject report, dated August 11, 1981, was reviewed to determine if the information provided met NRC reporting requirements. The determination included adequacy of event description and corrective action taken or planned, existence of potential generic problems and the relative safety significance of the event.

In addition, the inspector discussed the event, which involved the discovery of an apparent crack in a reactor water cleanup system valve, with the licensee's metallurgical engineer. The inspector reviewed metallographic evidence, provided by the licensee, that indicated the presence of a stress corrosion crack in the valve. The crack did not appear to have progressed to a point sufficient to make it a significant hazard. The licensee stated that the cracked valve was replaced with a valve of a material not considered susceptible to stress corrosion cracking. The licensee also stated the required inservice inspection examinations were being performed on other welds in the same system to detect any further cracking.

7. Inspector Followup Item (IFI) - Unit 1

(Closed) IFI (259,260,296/81-36-02): Incorrect figure used in UT procedure to demonstrate base metal coverage for B-B and B-D category examinations. This item identified an inspector's concern that the licensee's procedure N-UT-4 R2, "Ultrasonic Examination of Nuclear Uncladded Pressure Vessels and Nozzles in the Thickness Range of 0.20 Inches to 2.5 Inches", did not appropriately specify ultrasonic examination coverage criteria in accordance with the requirements of the applicable Code, ASME Section XI (74S75). For the examinations covered by N-UT-4, the appropriate examination coverage criteria are depicted in Code Figures IWB-3511 and IWB-3512. N-UT-4 specifies coverage in accordance with Figure IWB-3511 of the Code. The failure of procedure N-UT-4 to specify appropriate criteria for examination coverage is considered to be an example of noncompliance with the requirements of 10 CFR 50, Appendix B, Criterion V, as implemented by Topical Report TR 75-01, paragraph 17.2.5. Two related examples of noncompliance found by NRC inspectors are described in paragraphs 3.b and 3.c above. This noncompliance was identified to the licensee as violation 259,260,296/82-33-01, as already noted in 3.b above.