



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

Report Nos. 50/79-39 and 50-591/79-33

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

Facility Name: Watts Bar Nuclear Station

Docket Nos. CPPR-91 and CPPR-92

Inspection at Watts Bar Dam, Rhea County, Tennessee

Inspector: *B. J. Cochran* 12/12/79  
 B. J. Cochran Date Signed

Approved by: *F. S. Cantrell* 12/12/79  
 F. S. Cantrell, Section Chief, RC&ES Branch Date Signed

Areas Inspected

This routine resident inspection involved 64 inspector-hours onsite in the areas of alignment of safety injection pump and motor, receiving inspection of new fuel, termination of chemical and volume control pump motor, mastic coating of electrical cables and fire stops, pulling electrical cable and termination cable in main control panel and installation of poison shims in spent fuel storage racks.

Results

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

## DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*T. B. Northern, Jr., Project Manager
- \*S. Johnson, Assistant Construction Engineer
- \*A. W. Rogers, Supervisor, QA
- \*C. O. Christopher, Assistant Construction Engineer (Civil)
- \*R. L. Heatherly, Supervisor, QC&R Unit
- \*J. H. Perdue, Supervisor, Electrical Engineering Unit
- J. M. Lamb, Supervisor, Mechanical Engineering Unit
- \*H. C. Richardson, Construction Engineer
- \*J. G. Shields, Assistant Construction Engineer
- \*J. E. Treadway, Construction Superintendent
- W. C. English, Assistant Construction Superintendent

\*Attended exit interview

Other licensee employees contacted included construction craftsmen and technicians.

### 2. Exit Interview

The inspection scope and findings were summarized on October 12 and October 26, 1979, with those persons indicated in Paragraph 1 above. The resident inspector met with the licensee construction project manager and engineering supervisors to review the resident inspectors activities and findings. No items of noncompliance or deviations were identified.

### 3. Licensee Action on Previous Inspection Findings

This item was not inspected.

### 4. Unresolved Items

Unresolved items were not identified during this inspection.

### 5. Independent Inspection Effort (Units 1 and 2)

a. During this inspection period the following non-programmatic construction activities were inspected, observed or witnessed:

- (1) Observed millwrights aligning Unit 1 Safety Injection Pump (1BB) and Motor.
- (2) Witnessed the receiving and inspection of six new fuel shipping casks (twelve fuel assemblies).

- (3) Observed the electrical termination of Chemical and Volume Control Motor (1BB).
  - (4) Inspected the mastic coating of cables and fire stops in the Diesel generator building electrical penetrations.
  - (5) Inspected 480 volt Control and Auxiliary Building Ventilation Motor Control Center for damage due to shorted bus bars.
  - (6) Witnessed the installation of poison shims in the spent fuel storage racks. This activity is generally done by the manufacturer prior to shipment, however, the shims were not installed in the two racks making up the first shipment. The shims were installed by construction boilermakers under the supervision of two engineering representatives from the manufacturer, Wachter Associates, Inc., and the TVA cognizant mechanical engineer. Approximately twelve shims required force to insert them in the rack poison holders. A review of the manufacturer's drawings showed a design clearance of 0.050 inch between the shim and the holder. The Wachter engineer stated that all the shims were within tolerance and that the interference was probably due to a slight distortion of the racks during handling and shipping. Further discussion with the Wachter engineer did not satisfy this inspector that the shims could be removed and new shims installed at a later date. TVA has been asked to review this and advise the NRC if this condition is acceptable. This is identified as an Inspector follow-up item 50-390/79-39-01 and 50-391/79-33-01.
- b. The following Watts Bar QA Audits were examined:
- (1) WB-E-79-11, Installation and Inspection of Electrical Penetration Pressure Seal, Firestop Barrier and Flame Retardant Cable Coating.
  - (2) WB-G-79-16, Control of Nonconforming Materials and Conditions Adverse to Quality and Corrective Actions.
  - (3) WB-G-79-14, Documentation of Inspections, Testing and Other Activities Performed on the Upper Head Injection and Containment Spray Systems.
  - (4) WB-G-79-15, Lifting and Transporting of Major Components
  - (5) WB-I-79-03, Handling, Storage and Maintenance of Permanent Instrumentation Materials
  - (6) WB-L-79-02, Backfill Operations

6. Licensee Identified Items 50.55(e)

- a. (Close) (Item Nos. 390/79-08-02 and 391/79-05-02) "Metal shavings in auxiliary feed water valve actuators" (NCF-1356R)

The metal shavings were removed, valve actuators cleaned and refilled with hydraulic oil under the supervision of the manufacturer's representative.

Actuators are being installed on the valves.

- b. (Close) (Item Nos. 390/79-09-01 and 391/79-03-01) "Spacing between reactor building steel liner and concrete" (NCR-1319R)

During the construction phase, fibrous glass expansion joint material was installed in the gap between the interior concrete refueling transfer canal structure and the containment vessel shell between azimuths 255 and 270 up to elevation 755 feet. TVA construction personnel used the expansion joint material as a forming agent instead of conventional forms due to the degree of difficulty in removing the forms. The design drawings called for the material to terminate at elevation 719.75 which would provide a 4-inch inward movement envelope for the dynamic displacement of the containment shell under a design basis accident (DBA). The presence of this material retards the free inward movement of the steel containment in the affected area under a DBA.

The reevaluation of this condition using the additional constraint imposed by the expansion joint material has determined that the effect of this additional material is negligible. Therefore, this condition does not adversely affect the safe operation of the plant.

- c. (Close) (Item Nos. 390/79-30-03 and 391/79-25-03) "Hydrogen Detection System not environmentally qualified" (EEB 79-11)

A review of the environmental qualification data for the components of the Hydrogen Detection System revealed that there was no verification that the requirements for 150°F and 50,000,000 rads 30-day radiation dose are met. These qualifications are necessary for the installed location of the components in the containment annulus. The components are supplied by Comsip Delphi, Incorporated, 10650 East Rush Street, South Elmonte, California 91733.

The component supplier has performed further tests and analyses which have verified that the components meet the environmental qualification requirements stated above. Documentation of the tests and analyses has been supplied to TVA, and it is acceptable.

- d. (Close) Item Nos. 390/79-26-09 and 390/79-30-07, SG Generator Level Transmitters (MEB-79-25)

This deficiency was discovered by Barton Company and reported to Westinghouse (W) and subsequently by W to TVA. Barton determined that the output of the transmitters shifted with temperature. If this deficiency had remained uncorrected, the steam generator narrow range level transmitters may have led to initiation of protective functions too late to provide the intended protection.

The narrow range level transmitters have been returned to the Barton Company for modification to return them within specifications.

- e. (Open) Item No. 50-390/79-39-02) Surface Indications on Loop Steam Generator

Lambert, MacGill and Thomas (LMT) is performing the preservice inspection of the steam generators under contract to Westinghouse (W). W notified TVA that surface indications were identified during the performance of the UT preservice inspection that are reportable under Section II of the ASME code.

7. Electrical (Cables and Terminations) Observation of Work and Work Activities

Installation of cable trays, cable tray supports, conduit and junction boxes in the auxiliary building were selected for inspection. Cable tray routing and node identification was verified against drawings 45W888-19R2, 20-R2, 21-R2, 43-R1, 44-R0 and 45-R1. Cables are installed in trays in a neat and orderly manner with slack removed. Cable is wrapped to cable tray rungs.

Cable tray supports were inspected for verification that they had been inspected and accepted by the electrical engineering unit.

Installation of a 12 foot section of four inch field run conduit on elevation 737 feet was observed.

Trip test of Molded Case Circuit Breakers were observed. The thirty minute full load test, thermal trip test, and instantaneous trip tests were performed according to TVA Standard Test No. 6-05A.

Observed two cable pulling crews pulling four 3/c 12 Awg and three 1/c 4-0 Awg from the 480 volt motor control center at elevation 772 feet to Unit 1 reactor building penetrations.

Observed the termination of six cables in the main control board and two in the 125 volt vital battery distribution board. Calibration of three crimping tools was verified.

In the areas inspected no items of noncompliance were identified.