



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

Report Nos. 50-390/79-33 and 50-391/79-28

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

Facility Name: Watts Bar Nuclear Plant

Docket Nos. 50-390 and 50-391

License Nos. CPPR-91 and CPPR-92

Inspection at Watts Bar Site near Spring City, Tennessee

Inspectors:	<u>M. Thomas for</u>	<u>9/25/79</u>
	B. J. Cochran	Date Signed
	<u>M. Thomas</u>	<u>9/25/79</u>
	M. Thomas	Date Signed
Approved by:	<u>F. S. Cantrell</u>	<u>9/25/79</u>
	F. S. Cantrell, Section Chief, RCES Branch	Date Signed

SUMMARY

Inspection on August 1-September 7, 1979

Areas Inspected

This routine, unannounced inspection involved 108 inspector-hours onsite in the areas of installation and termination of electrical cables, operation of emergency diesel generators, installation of electrical fire stops, setting of structural steel on roof of Unit 2 main steam valve room, UT examination of Unit 1 control rod drive housings, fuel transfer equipment, testing of pipe hanger bolts, and testing of RHR system valves.

Results

Of the eight areas inspected, no items of noncompliance or deviations were found in seven areas; one item of noncompliance was found in one area (Infraction - Failure to follow procedures for use of dynamometer in cable pulling - Details, paragraph 5).

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

Other licensee employees contacted included construction craftsmen, technicians, security force members, and office personnel.

**Attended exit interview August 10,17,30, and September 7, 1979

*Attended exit interview August 10,17, and September 7, 1979

2. Exit Interview

The inspection scope and findings were summarized on August 10,17,30, and September 7, 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 inspector's activities and findings. The item of noncompliance described in paragraph 5 was discussed.

3. Licensee Action on Previous Inspection Findings

(Closed) Deficiency, 390/79-13-04 and 391/79-10-04, No Documentation Requirement for Welding Inspection of Pipe Whip Restraints.

TVA's QCP 2.4 was developed to control this work based on the requirements of AWS D1.0-69, D1.1-75 and TVA's construction procedure G-29C. The requirement under AWS D1.0-69 and D1.1-75 for records is that the inspector identify the accepted work with a distinguishing mark and that records be kept on qualified procedures, operators and other test information as required.

TVA has inspected the pipe whip restraints and documented the inspection results according to AWS.

This item is considered closed.

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-programatic construction activities were inspected, observed or witnessed:
- (1) Observed the running and check out of emergency diesel generator number 3.
 - (2) Examined the preparation for installing fire stops in electrical penetrations and coating the cables within the diesel generator building.
 - (3) Observed the setting of I-beam structural steel on roof of Unit 2 north valve room.
 - (4) Examined cable trays in the shutdown board room for over fill conditions. Two trays were identified as full and additional cables are not to be run in them.
 - (5) Observed the UT examination of welds in the Unit 1 control rod drive thimbles on the reactor head.
 - (6) Inspected the fuel transfer equipment in the refueling canal.
 - (7) Witnessed the testing of pipe hanger bolts at elevation 782.
 - (8) Inspected construction housekeeping in Units 1 and 2 reactor buildings and the auxiliary building.
 - (9) Observed the testing of RHR system flow control valve 1-FCV-74-24-B at elevation 676 and from the 480 V shutdown board Motor Control Center.
 - (10) Witnessed the termination of reactor coolant pump number three power cables inside the reactor building penetration between the steel liner and the crane wall.
 - (11) Observed the pulling of 4/1 conductors size 300 MCM power cables running 552 feet from 0-BD-228-1 to 1-PENT-293-41. The pulling crew had a dynamometer installed in the middle of the run with one end attached to a fixed pipe support and the other to a pulley with the cables passing over the pulley sheave. The dynamometer in this location cannot accurately measure the true pulling force on the cable. Watts Bar Quality Control Procedure, WBNP-QCP-3.6, Rev. 6, paragraph 6.1.18 states, in part, that a device be used to verify that the maximum allowable pull tension is not exceeded. In a discussion with members of the pulling crew and their supervisors, they stated that locating the dynamometer in the middle of the run was common practice.

This is an infraction and is identified as 390/79-33-04 and 391/79-28-04.

- b. The following Watts Bar QA audits were examined:
- (1). WB-E-79-08, Installation, Inspection, and Documentation of Primary Containment Electrical Penetrations.
 - (2). WB-E-79-09, Temporary Electrical Connections.
 - (3). WB-E-79-10, Installation of Exposed Conduit.
 - (4). WB-W-79-05, Welding Surveillance and Welding Procedure Assignment.
 - (5). WB-M-79-10, Handling, Storage, and Maintenance of Permanent Mechanical Equipment.
 - (6). WB-G-79-12, Control and Calibration of Construction Tools, Gauges, Instruments, and Measuring Devices.

6. Licensee Identified Items 50.55(e)

- a. (Open) Item Nos. 390/79-33-01 and 391/79-28-01, Inadequate Design of 3/4" Test Lines on Safety Injection Headers (SWP-79-W-9).

TVA informed RII that the 3/4" test lines from the 8" low head safety injection system headers are not designed to allow adequate piping flexibility per ASME Section III, Class III.

- b. (Open) Item Nos. 390/79-33-02 and 391/79-28-02, Overflow Pipe on Refueling Water Storage Tank (NCR 1725R).

TVA informed RII that the overflow pipe on the refueling water storage tank (RWST) was not fabricated to the correct ASME code (ASME Section III, Subarticles NC-4200 and NC-5200).

- c. (Open) Item Nos. 390/79-33-03 and 391/79-28-03, Excessive Output Fluctuation of Foxboro Instrumentation (NCR's 1778R, 1779R).

TVA reported that Foxboro magnetic amplifiers in instrumentation modules are not performing to specification. Excessive output fluctuation can cause spurious operation of the reactor protection system resulting in a reactor trip and safety injection actuation. The problem extends to 168 modules per unit.

- d. (Closed) Item Nos. 390/79-26-02 and 391/79-22-02, ERCW Valves on the Discharge of the CCS Heat Exchanger (MEB 79-23).

The reduction of the required flow through the ERCW train B components other than the CCS heat exchanger C in the event of a loss of offsite power and failure of power train A would result in inadequate cooling

of required safety-related equipment. This lack of cooling would adversely affect the ability of the plant to achieve safe shutdown. All automatic opening signals to the ERCW header A valve (FCV-67-151) will be removed.

7. Electrical (Cables and Terminations) - Observation of Work and Work Activities (Units 1 and 2)

Cable trays in the Auxiliary Building at Elevation 713 were inspected for conformance to design requirements. All trays are bolted together and bolted to the tray supports. Examinations of tray joints, tray rungs, and nuts and bolts confirm that burrs and sharp edges were removed. Cable trays are identified according to safety, nonsafety and voltage levels. Cable trays are grounded through a base copper ground cable bolted or cadwelded to the cable tray support systems.

Cable installation by three different pulling crews was observed. One pull consisted of 22 cables (14, 2 conductor 16 AWG and 8, 4 conductor 14 AWG), the second pull was of 1 cable 3 conductor 12 AWG and the third was of 1 cable 16 conductors 14 AWG. The 3 conductors and 16 conductor cables were pulled without incident, however; the 22 cable bundle became wedged in an idler pulley and five cables were damaged. The damaged cables were removed and new cable rerun.

During the cable installation the inspector checked the pull cards and confirmed the routing, size and type of cable, pulling tension, bend radius and pulling compound. Both ends of the pulled cable was coiled, taped and properly tagged.

The inspector observed the termination of twelve cables in the control room control panels observing four electricians. In addition, termination of the power leads to two boric acid transfer pumps and the power leads to a motor operated valve was observed.

In the areas inspected no items of noncompliance or deviations were observed.