



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
230 PEACHTREE STREET, N.W. SUITE 1217  
ATLANTA, GEORGIA 30303

*Central file*  
*50-390*  
*391*

DEC 16 1977

In Reply Refer To:  
RII:BJC  
50-390/77-17  
50-391/77-16

Tennessee Valley Authority  
Attn: Mr. Godwin Williams, Jr.  
Manager of Power  
830 Power Building  
Chattanooga, Tennessee 37401

Gentlemen:

This refers to the inspection conducted by Dr. B. J. Cochran of this office on November 29 - December 2, 1977, of activities authorized by NRC Construction Permit Nos. CPPR-91 and CPPR-92 for the Watts Bar Nuclear Plant Unit Nos. 1 and 2 facilities, and to the discussion of our findings held with Mr. T. B. Northern, Jr., at the conclusion of the inspection.

Areas examined during the inspection and our findings are discussed in the enclosed inspection report. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspector.

Within the scope of this inspection, no items of noncompliance were disclosed.

One new unresolved item resulted from this inspection and is discussed in the enclosed report. This item will be examined during subsequent inspections.

In accordance with Section 2.790 of the NRC's "Rules of Practice", Part 2, Title 10, Code of Federal Regulations, a copy of this letter and the enclosed inspection report will be placed in the NRC's Public Document Room. If this report contains any information that you (or your contractor) believe to be proprietary, it is necessary that you make a written application within 20 days to this office to withhold such information from public disclosure. Any such application must include a full statement of the reasons on the basis of which it is claimed that the information is proprietary, and should be prepared so that proprietary information identified in the application is contained in a separate part of the document. If we do not hear from you in this regard within the specified period, the report will be placed in the Public Document Room.

60

Should you have any questions concerning this letter, we will be glad to discuss them with you.

Sincerely,



C. E. Murphy, Chief  
Reactor Construction and Engineering  
Support Branch

Enclosure:

RII Inspection Report Nos.  
50-390/77-17  
50-391/77-16

cc w/encl:

Mr. J. E. Gilleland  
Assistant Manager of Power  
830 Power Building  
Chattanooga, Tennessee 37401

Mr. T. B. Northern, Jr.  
Project Manager  
Watts Bar Nuclear Plant  
P. O. Box 2000  
Spring City, Tennessee 37381

Mr. Stan Duhan  
400 Commerce Street  
E4D112  
Knoxville, Tennessee 37902



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
230 PEACHTREE STREET, N.W. SUITE 1217  
ATLANTA, GEORGIA 30303

Report Nos.: 50-390/77-17 and 50-391/77-16

Docket Nos.: 50-390 and 50-391

License Nos.: CPPR-91 and CPPR-92

Categories: A2, A2

Licensee: Tennessee Valley Authority  
830 Power Building  
Chattanooga, Tennessee 37401

Facility Name: Watts Bar Nuclear Plant, Units 1 and 2

Inspection at: Watts Bar Dam, Tennessee

Inspection conducted: November 29 - December 2, 1977

Inspector: B. J. Cochran

Reviewed by: Virginia Brunlee for  
A. R. Herdt, Chief  
Projects Section  
Reactor Construction and Engineering Support Branch

12/15/77  
Date

Inspection Summary

Inspection on November 29 - December 2, 1977 (Report Nos. 50-390/77-17 and 50-391/77-16)

Storage of equipment in the auxiliary building and reactor buildings; Unit 2 containment building polar crane test; placement of low density concrete; site QA audit reports. The inspection involved 26 inspector-hours at the construction site by one NRC inspector.

Results: No items of noncompliance or deviations were identified.

DETAILS I

Prepared by: AR Herdt 12/14/77  
for B. J. Cochran, Principal Inspector Date  
Projects Section  
Reactor Construction and Engineering  
Support Branch

Dates of Inspection: November 29 - December 2, 1977

Reviewed by: Vingth Brownlee for 12/15/77  
A. R. Herdt, Chief Date  
Projects Section  
Reactor Construction and Engineering  
Support Branch

1. Persons Contacted

Tennessee Valley Authority

- \*T. B. Northern, Jr., Project Manager
- \*A. W. Rogers, Supervisor QA
  - J. R. Inger, QA Unit
  - H. G. McFarland, QA Unit
  - R. L. Young, QA Unit
  - J. F. Fifrick, QA Unit
- \*R. L. Heatherly, Supervisor, QC&R Unit
- \*J. S. Colley, EN DES QEB
- \*J. H. Purdue, Supervisor, Electrical Engineering Unit
- \*J. M. Lamb, Supervisor, Mechanical Engineering Unit
- \*L. S. Cox, Assistant Construction Engineer
- \*J. E. Treadway, Construction Superintendent
- \*R. Bradley, OEDC-QA
- \*R. D. Anderson, Electrical Engineer
- \*E. J. Austin, Assistant Supervisor, Electrical Engineer
- \*J. A. Morgan, Assistant Supervisor, Mechanical Engineer
- \*J. G. Shields, Assistant Construction Engineer
- \*H. C. Richardson, Construction Engineer
- \*S. Johnson, Assistant Construction Engineer
- \*C. J. Holmes, Assistant Construction Superintendent
  - J. D. Shanlever, Mechanical Engineer
  - J. A. Kerr, Mechanical Engineer

The inspector also talked with craftsmen in their work area and members of the engineering units.

\*Denotes those present at the exit interview.

2. Licensee Actions on Previous Inspection Findings

Actions on previous inspection findings were not examined during this inspection.

3. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. Unresolved items disclosed during this inspection are discussed in paragraph 5.

4. Independent Inspection Effort

The inspector examined the equipment, components and tanks installed or stored in place in the auxiliary building and Units 1 and 2 reactor buildings.

a. In the auxiliary building:

- (1) At elevation 670 feet the tritiated drain tank is stored in place.
- (2) At elevation 676 feet the waste evaporator feed pumps (2), Units 1 and 2 residual heat removal pumps (4), waste evaporator steam condensate tank (1) and pumps (2), auxiliary waste evaporator feed pumps (2), floor drain sump pumps (4), gas stripper feed pumps (3), and the floor drain collector tank (1) are stored in place.
- (3) At elevation 692 feet the boric acid evaporator packages (2), hold-up tanks (2), gas decay tanks (9), laundry and hot shower tanks (2) and pump (1), chemical drain tank (1) and pump (1), Units 1 and 2 auxiliary feedwater pumps (2), Units 1 and 2 centrifugal charging pumps (4), Units 1 and 2 reciprocating charging pumps (2), primary water make-up pumps (2), auxiliary feedwater sump pumps (2), Units 1 and 2 safety injection pumps (4), reactor cavity refueling water purification pumps (2) and filters (2), waste condensate tanks (3) and pumps (2), auxiliary waste evaporator (2), Units 1 and 2 chiller water recirculating pumps (4), Units 1 and 2 chillers (2), cask decontamination collector tank (1), cask decontamination pumps (2) and filters (2) and the spent resin storage tank (1) are stored in place.

- (4) At elevation 713 feet the Unit 1 boron injection tank (1), Units 1 and 2 containment spray heat exchangers (2), Units 1 and 2 residual heat exchangers (2), Units 1 and 2 seal water heat exchangers (2), Units 1 and 2 volume control tanks (2), monitor tank (1), Unit 1 and 2 containment purge air exhaust equipment (2), Units 1 and 2 motor driven auxiliary feed water pumps (4), boric acid transfer pumps (4), caustic batching tank (1), boric acid tanks (3), boric acid transfer pumps (4), caustic batching tank (1) and coolers (4) are stored in place.
- (5) At elevation 737 feet Units 1 and 2 upper head injection water tanks (2), Units 1 and 2 upper head injection N<sub>2</sub> accumulators (2), spent fuel pit heat exchangers (2), spent fuel pit skimmer pump (1), Units 1 and auxiliary building gas treatment system (2), Units 1 and 2 letdown heat exchangers (2), air pretreating pumps (2), air conditioning units (4), chillers (5), CHW pumps (4), component cooling water heat exchanger (3) are stored in place.
- (6) At elevation 757 feet the emergency gas treatment filters (2), Units 1 and 2 air handling units (4), coolers (2), Units 1 and 2 component cooling surge tanks (2), Units 1 and 2 619 Kv shutdown boards (4), Units 1 and 2 480V shutdown boards (8), Units 1 and 2 containment and auxiliary buildings ventilation boards (8) and auxiliary control room panels (8) are stored in place.
- (7) At elevation 772 feet the Units 1 and 2 480V shutdown boards transformers (14), Units 1 and 2 battery chargers (4), Units 1 and 2 vital inverters (8), Units 1 and 2 air conditioning units (8), Units 1 and 2 480V MOV boards (10), Units 1 and 2 control rod drive control panels (14), Units 1 and 2 480V auxiliary transformers (8), and Units 1 and 2 pressurizer control panels (2) are stored in place.

b. In the Unit 1 reactor building:

- (1) At elevation 702 feet the pressurizer relief tank (1) is stored in place.
- (2) At elevation 716 feet the accumulators (4), are stored in place.

(3) The reactor coolant pumps (4), reactor coolant piping, reactor vessel (1), steam generators (4) and the pressurizer (1) are stored in place.

c. In the Unit 2 reactor building:

(1) At elevation 702 feet the pressurizer relief tank (1) is stored in place.

(2) At elevation 716 feet the accumulators (4) are stored in place.

The reactor coolant pumps (4), reactor coolant piping, reactor vessel (1), steam generators (4) and the pressurizer (1) are stored in place.

No items of nonconformance or deviation were identified.

5. Equipment Storage Records

The inspector checked the electrical equipment and mechanical equipment inspection and storage records against the requirements identified in the following Watts Bar QC procedures:

- a. WBNP-QCP 3.6 - Electrical and Instrumentation Equipment Installation, Standard Tests, Inspections, and Documentation.
- b. WBNP-QCP 4.7 - Mechanical Equipment Installation Standard Inspection and Documentation
- c. WBNP-QCP 1.16 - Equipment Monitoring Program
- d. WBNP-QCP 1.6 - Receipt, Inspection, Storage, Withdrawal and Transfer of Permanent Materials
- e. WBNP-QCP 4.5 - Handling, Storage and Maintenance of Permanent Mechanical Equipment
- f. WBNP-QCP 3.1 - Handling, Storage and Maintenance of Permanent Electrical and Instrumentation Equipment.

The inspection of the mechanical equipment storage records could not be completed because the engineer responsible for the inspection and storage of mechanical equipment and his records were not

available for examination. The mechanical equipment storage records are identified as unresolved item 77-17-01. The licensee acknowledged the finding and committed to have the records available for inspection during subsequent inspections. Inspection of electrical equipment records was performed.

No items of noncompliance or deviations were identified.

6. Unit 2 Polar Crane Test

Acceptance tests of the Unit 2 reactor building 175/35 ton polar crane was conducted to verify that the specified operational requirements were met. The tests were made according to the TVA "Acceptance Test Procedure for the 175/35 Ton Reactor Building Polar Crane". The inspector observed the full load test of the 175 ton hook and the half load test of the 35 ton hook.

No items of noncompliance or deviations were identified.

7. Placement of the Low Density Concrete in Unit 2 Reactor Building

The inspector witnessed the placement of the low density (30 pounds per square foot) concrete in the Unit 2 reactor building. The concrete, known under the trade name of "Celcore" was placed in building annulus at elevation 745 feet to assist in forming a vapor barrier at the base of the ice baskets. The inspector observed the QC inspectors in the taking of test cylinders.

No items of noncompliance or deviations were observed.

8. QA Audits

The inspector examined the site QA audit reports of audits performed in 1977 on receiving and storage of mechanical and electrical equipment. One audit report on mechanical equipment and four reports on electrical equipment were reviewed. Deficiencies were identified and corrective actions identified.

No items of noncompliance or deviations were identified.

9. Exit Interview

The inspector met with licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on December 2, 1977. The inspector summarized the scope of the inspection and discussed in detail the inspection and storage of equipment. The licensee acknowledged the unresolved item identified in paragraph 5 and committed to have all records available for future inspection.