DR Central File

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
230 PEACHTREE STREET, N. W. SUITE 818
ATLANTA, GEORGIA 30303

AUG 25 1975

In Reply Refer To:
IE:II:VLB
50-390/75-7
50-391/75-7

Tennessee Valley Authority
Attn: Mr. J. E. Watson
Manager of Power
818 Power Building
Chattanooga, Tennessee 37401

Gentlemen:

This refers to the inspection conducted by Mr. V. L. Brownlee of this office on July 29-31, 1975, of activities authorized by NRC Construction Permit Nos. CPPR-91 and CPPR-92 for the Watts Bar Nuclear Plants, Units 1 and 2 facilities, and to the discussion of our findings held with Mr. J. C. Killian 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 examination 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.

We have examined actions you have taken with regard to previously reported unresolved items. These are identified in Section IV of the summary of the enclosed report.

Two new unresolved items resulted from this inspection and are identified in Section III of the summary of the enclosed report. These items 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 believe to be proprietary, it is necessary that you submit a written application to this office requesting that such information be withheld from public disclosure. If no proprietary information is identified, a written

statement to that effect should be submitted. If an application is submitted, it must fully identify the bases for which information is claimed to be proprietary. The application should be prepared so that information sought to be withheld is incorporated in a separate paper and referenced in the application since the application will be placed in the Public Document Room. Your application, or written statement, should be submitted to us within 20 days. If we are not contacted as specified, the enclosed report and this letter may then be placed in the Public Document Room.

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

Very truly yours,

Norman C. Moseley
Director

Enclosure:
IE Inspection Report Nos.
50-390/75-7 and 50-391/75-7

cc w/encl: Mr. J. E. Gilleland
Assistant Manager of
Power

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
230 PEACHTREE STREET, N. W. SUITE 818
ATLANTA, GEORGIA 30303

IE Inspection Report Nos. 50-390/75-7 and 50-391/75-7

Licensee: Tennessee Valley Authority
818 Power Building
Chattanooga, Tennessee 27401

Facility Name: Watts Bar Nuclear Plant, Units 1 and 2
Docket Nos.: 50-390 and 50-391
License Nos.: CPPR-91 and CPPR-92
Category: A2/A2

Location: Spring City, Tennessee

Type of License: W PWR, 1160 Mwe

Type of Inspection: Routine, Unannounced, Construction

Dates of Inspection: July 29-31, 1975

Dates of Previous Inspection: July 8-11, 1975

Principal Inspector: V. L. Brownlee, Reactor Inspector
Facilities Section
Facilities Construction Branch

Accompanying Inspectors: S. D. Ebneter, Reactor Inspector
Engineering Section
Facilities Construction Branch

Other Accompanying Personnel: None

Principal Inspector: V. L. Brownlee 8/22/75
V. L. Brownlee, Reactor Inspector — Date
Facilities Section
Facilities Construction Branch

Reviewed by: J. E. Foster for 8/22/75
J. C. Bryant, Senior Inspector — Date
Facilities Section
Facilities Construction Branch

SUMMARY OF FINDINGS

I. Enforcement Items

None

II. Licensee Action on Previously Identified Enforcement Matters

None

III. New Unresolved Items

75-7/1 Electrical Separations Criteria (Units 1 and 2)

The licensee has omitted the electrical separations criteria applicable to the auxiliary instrument room in procedure WBNP-QCP-3.4. The licensee stated that separation criteria will be incorporated into Procedure QCP-3.4. (Details II, Paragraph 3)

75-7/2 Concrete - Crane Wall (Unit 1)

Crane wall pour Nos. C4b and C3a exhibited evidence of voiding and possible honeycombing. The licensee has taken action to prevent recurrence. (Details I, Paragraph 4)

IV. Status of Previously Reported Unresolved Items

75-3/1 Regulatory Operations Bulletin and Licensee Response

ROB 74-9 - "Deficiency in General Electric Model 4 KV Magne-Blast Circuit Breakers." This item remains open.

75-5/1 Valve Wall Thickness Verification Program

TVA (DED) will submit a valve wall thickness program that meets Region II letters of June 30, 1972, and February 16, 1973. This item remains open.

75-6/1 IE Bulletin No. 75-06, "Westinghouse Type OT-2 Control Switches"

TVA's letter of response, dated July 31, 1975, identifies that subject type switches are utilized in safety related circuits. This item remains open. (Details I, Paragraph 5)

V. Design Changes

None

VI. Unusual Occurrences

None

VII. Other Significant Findings

None

VIII. Management Interview

The inspectors met with J. C. Killian, Project Manager; members of the site staff; and QA representatives of OEDC and DED, Knoxville. The licensee was apprised of the areas inspected and findings as noted in this report.

IE Rpt. Nos. 50-390/75-7
and 50-391/75-7

DETAILS I

Prepared by: V. L. Brownlee, Reactor Inspector — 8/21/75 Date
Facilities Section
Facilities Construction Branch

Dates of Inspection: July 29-31, 1975

Reviewed by: J. C. Bryant, Senior Inspector — 8/22/75 Date
Facilities Section
Facilities Construction Branch

All information in Details I applies equally to Units 1 and 2 except where identified with a specific reactor.

1. Individuals Contacted

a. Tennessee Valley Authority (TVA)

(1) Site

J. C. Killian - Project Manager
T. B. Northern, Jr. - Construction Engineer
L. C. Northard - Supervisor, Site QA Unit, DEC Staff
J. M. Lamb - Supervisor, Mechanical Engineering Unit
H. S. Shepperd - Supervisor, Civil Engineering Unit
R. L. Heatherly - Supervisor, QC and Records Unit
J. C. Cofield - Supervisor, Materials Engineering Unit
A. R. White - Construction Superintendent
J. H. Perdue - Supervisor, Electrical Engineering Unit
S. Johnson - Principal Mechanical Engineer
J. G. Shields - Principal Electrical Engineer
H. G. McFarland - Site QA Engineer

(2) Knoxville

S. Duhan - OEDC - QA
T. V. Abbatiello - DED - QA

2. Project Status

Units 1 and 2 containment bottom liner plates have been completed. Work on Unit 1 reactor vessel shield wall and crane wall continues. CB&I has started Unit 2 containment vessel side wall erection and Units 1 and 2 containment vessel dome subassemblies. Large quantities of electrical components are being received on site and placed in storage.

3. Implementation of Site QA Program

The organizational/functional alignment of site QA/QC and construction remains basically as identified in the QA Program Description, Section 17.1A of the QA Manual for Design and Construction.

The Division of Construction is responsible for the QA function during construction. The Director of Construction has prime responsibility for the development and implementation of the QA/QC program for constuction. The Director is assisted in administering the QA program by the Chief, QA Staff, Division of Construction. The Supervisor, Field QA, reports directly to the Chief, QA Staff, and acts as the Chief's representative at the site relative to site QA matters. The site Project Manager is responsible for constructing the plant in accordance with design and QA requirements. The site Construction Engineer reports directly to the Project Manager and is assigned primary responsibility for assuring the control of the quality of all on site work by TVA and contractor work forces.

The principal engineers serve as staff engineers and provide advisory and consultant services to the engineering supervisors. The engineering supervisors and their field engineers are qualified personnel who verify that activities affecting quality have been correctly performed. The QC and Records Engineer is responsible for control of engineering documents and QA/QC records at the site.

Discussions with site engineers, review of organizational/functional charts, review of the QA Manual for Design and Construction, and examination of audit schedules and selected audits verify the following:

a. The site QA/QC organizational/functional alignment is in accordance with the QA organizational chart.

b. The QA program description of the QA manual contains general descriptions of duties and responsibilities of personnel performing QA/QC functions.

c. Audit program measures are established which identify the scope and frequency of audits and provide for the documentation of audits and submittal of audit reports to appropriate management levels.

4. Concrete - Crane Wall (Unit 1)

Concrete pours C4b and C3c exhibit considerable surface voids with possible subsurface honeycombing. Examination of the placed concrete, discussions with the civil and materials engineers and examination of similar pour areas which were being formed at the time of inspection provided the following factors which could have contributed to the honeycombing: (a) congested reinforcing steel, embedments and embed support steel; (b) stiff concrete mix; (c) lack of inspection ports and vibration ports in the haunch area. The placement was made on July 24, 1975. Cubic yards of concrete placed was 102 versus the estimated 104 cubic yards.

Corrective actions to be implemented on subsequent pours are to provide access ports in the haunch area for small vibrators, use of a more workable design mix, and use of round stock for embed supports in lieu of angle steel.

The nonconforming items are documented in the site records. TVA was informed that IE:II will examine the full extent of repair and final documentation during a subsequent inspection.

5. Previously Reported Unresolved Item - 75-3/1 IE Bulletin No. 75-06, "Westinghouse Type OT-2 Control Switches"

TVA's letter of response dated July 31, 1975 confirms that the subject type switches are utilized in safety-related circuits. TVA committed to inspecting the switches in accordance with the requirements of Westinghouse Bulletin NSD-TB-75-4 prior to preoperational tests. This item will remain open until IE:II confirms that all safety related switches have been identified and that the inspection program has been incorporated into the normal field inspection program.

IE Report Nos. 50-390/75-7
and 50-391/75-7

DETAILS II

Prepared by: _____ _____
S. D. Ebneter, Reactor Inspector Date
Engineering Section
Facilities Construction Branch

Dates of Inspection: July 29-31, 1975

Reviewed by: L. L. Beratan 9-16-75
L. L. Beratan, Senior Inspector Date
Engineering Section
Facilities Construction Branch

1. Persons Contacted

Tennessee Valley Authority (TVA)

J. C. Killian - Project Manager
L. C. Northard - Supervisor, Site QA Unit, DEC Staff
R. L. Heatherly - Supervisor, QC and Records Unit
J. H. Perdue - Supervisor, Electrical Engineering Unit
T. V. Abbatiello - DED - QA

2. Scope of Inspection

This inspection concentrated on the development and implementation of adequate quality control procedures in the electrical and instrumentation areas. Procedures were reviewed for adequacy; installations were observed and records audited to verify implementation of the procedures.

3. Procedures

Appendix A of the PSAR delineates the quality assurance (QA) and quality control (QC) programs applicable to WBNP. Further commitments related to QC in the electrical area are contained in Section 8 of the PSAR and in the responses to NRC questions, particularly 7.1 through 7.6.

The QA program for the Offices of Engineering Design and Construction (OEDC) is contained in the OEDC QA manual Volume 1 and is implemented by Construction Procedures contained in Volume 2. The latter document contains general procedures in Section 1.0 and electrical procedures in Section 3.0. Procedures have been established and implemented for those activities that have been initiated as follows:

QCP-3.1 Handling, Storage and Maintenance of Permanent Electrical Equipment

QCP-3.4 Installation, Inspection and Documenting of Cable Tray System

QCP-1.16 Equipment Monitory Program

Additional procedures are being developed to control installation and inspection of electrical equipment, electrical cables, and instrumentation. Some of these were available in draft form such as QCP-3.6. The instrumentation procedures were considerably behind in development. Procedure QCP-3.4 appeared to be complete with the exception of attachment B which contained the separation requirements for all areas except the auxiliary instrument room. Those separation criteria cited were in agreement with the PSAR and design documents. Attachment B has not been implemented due to the construction status and the licensee stated that the separation criteria would be incorporated. This is identified as unresolved item 75-7/1. The inspector had no further questions.

4. Implementation of Procedures

The inspector observed cable tray support installation and inspection in the control building. No deviations from procedure QCP 3.4 and other referenced documents were observed. The tray supports inspected were in conformance with applicable drawings.

The cable yard storage area and electrical equipment warehouses 21 and 23 were inspected for conformance to procedure QCP-3.1 Storage and nonconformance control by segregation and tagging was in compliance with procedural requirements. Storage location correlated with records thus providing physical traceability of storage locations. The inspector had no questions.

5. Records Audit

Several cable reels were selected at random in the cable yard for subsequent record audit. The records for WB 3564 and WB 3884 appeared to be complete and contained receiving reports, inspection and test (I&T) reports, and all identification numbers correlated.

Several NCR's applicable to cable were reviewed for conformance to QCP-3.1 and QCP-1.2. NCR's 125, 54, 81, 107 and 11 were traced and no procedural deviations were noted.

Shutdown boards 1-A-A and 1-B-B records for receiving, inspection and test appeared to be complete. Nonconformance records for NCR 69 and 71 applicable to the shutdown boards were traceable and appeared to be in conformance with QCP 3.1 and QCP 1.2. Record Cards required per QCP-1.16 were on file indicating status of the boards. The inspector had no further questions.