

Central files

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

In Reply Refer To:
IE:II:VLB
50-390/75-6
50-391/75-6

AUG 21 1975

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. W. B. Swan of this office on July 8-11, 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.

One new unresolved item resulted from this inspection and is identified in Section III of the summary of the enclosed report. This item will be examined on subsequent inspections.

Deficiencies identified through your internal audit program are shown in the details of the enclosed inspection report. In each case appropriate reports were made and corrective actions initiated or completed and no additional information is needed for these items at this time.

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



J. H.

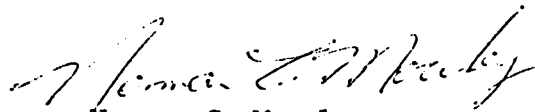
Tennessee Valley Authority

-2-

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.
50-390/75-6
50-391/75-6

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. 50-390/75-6 and 50-391/75-6

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 8-11, 1975

Dates of Previous Inspection: April 30 - May 2, 1975

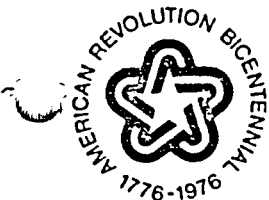
Inspector-in-Charge: W. B. Swan, Reactor Inspector
Engineering Section
Facilities Construction Branch

Accompanying Inspectors: None

Other Accompanying Personnel: None

Principal Inspector: V. L. Brownlee 8/19/75
V. L. Brownlee, Reactor Inspector
Facilities Section
Facilities Construction Branch
Date

Reviewed by: J. C. Bryant 8/25/75
J. C. Bryant, Senior Inspector
Facilities Section
Facilities Construction Branch
Date



SUMMARY OF FINDINGS

I. Enforcement Items

Deficiencies identified through your internal audit program and which were corrected, or corrective action was initiated, are set out in the details of the inspection report. No additional information is needed for these items at this time.

II. Licensee Action on Previously Identified Enforcement Matters

None

III. New Unresolved Items

The following item is identified for followup and was not part of the inspection:

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

IV. Status of Previously Reported Unresolved Items

75-3/1 Regulatory Operations Bulletins and Licensee Responses

Discussions with responsible QA and technical personnel and review of equipment lists, purchase documents and file correspondence confirm that the investigative actions, conclusions and followup actions identified in the licensee's letters of response are being implemented for the following ROB's and these items are closed. (Details I, paragraph 5)

ROB 74-6 - "Defective Westinghouse Type W-2 Control Switch Component"

ROB 74-11 - "Improper Wiring on Safety Injection Logic"

The following ROB remains open for further action by TVA:
(Details I, paragraph 5)

ROB 74-9 - "Deficiency in General Electric Model 4 KV Magne-Blast Circuit Breakers"

74-5/1 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. (Details I, paragraph 6)

75-5/1 Procedure Control

TVA has amended corporate procedure approval requirements which permits site approval and issuance of needed procedures. This item is closed. (Details I, paragraph 2)

75-5/2 IE Bulletin No. 75-03, "ASCO Solenoid Valves"

TVA submitted their letter of response on May 16, 1975. This inspection confirms that corrective actions and plans are being implemented. This item is closed. (Details I, paragraph 3)

75-5/3 IE Bulletin No. 75-05, "Operability of Category I Hydraulic Shock and Sway Suppressors"

TVA letters of response dated May 14, June 16, and July 2, 1975, have been received by IE:II. TVA addressed all action items indicated in the IE Bulletin. IE:Headquarters is evaluating the letters of response. IE:II has no further questions regarding this matter. This item is closed. (Details I, paragraph 4)

V. Design Changes

None

VI. Unusual Occurrences

None

VII. Other Significant Findings

Project Status:

| | | |
|-------------|------------|-----------------------------------|
| Work Force: | 1848 | hourly employees |
| | 361 | annual employees |
| | 38 | service organization employees |
| | <u>203</u> | contractor personnel |
| Total | 2450 | (an increase of 666 in past year) |

Project Schedule:

Overall construction schedule has been maintained by shifting of effort around material and equipment delays, but negative impact from shortages appears to be imminent. Overall project is 25.7% complete and overall powerhouse concreting is 69% complete.

VIII. Management Interview

The inspector met with J. C. Killian, Project Manager; members of the site staff; and QA representatives of OEDC and DED, Knoxville, and OP, Chattanooga. The licensee was apprised of the areas inspected and findings relative to the status of previously reported unresolved items 75-3/1 and 75-5/1 concerning design control by field and the findings of an audit by Site QA Unit, DEC Staff, of the concrete QC program for a placement on the RB 1 Crane Wall. (Details I, paragraph 14)

DETAILS I

Prepared by:

W. B. Swan
W. B. Swan, Reactor Inspector
Engineering Section
Facilities Construction Branch

8/19/75
Date

Dates of Inspection: July 8-11, 1975

Reviewed by:

L. L. Beratan
L. L. Beratan, Senior Inspector
Engineering Section
Facilities Construction Branch

8-19-75
Date

All information in Details II 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
- 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
- J. E. Daniel - QA Engineer, DEC QA Staff, WB Unit
- J. A. Morgan - Mechanical Engineer, Welding and NDE
- K. A. Hasting - Construction Engineering Associate, NDE
- B. J. Majors - Construction Engineering Associate, Welding
- J. H. Perdue - Electrical Engineering Unit Supervisor
- S. Johnson - Principal Mechanical Engineer
- F. Smith, Jr. - Civil Engineer
- S. Johnson - Principal Mechanical Engineer
- A. W. Rogers - QA Engineer
- J. R. Inger - QA Engineer
- R. L. Young - QA Engineer

(2) Knoxville

- L. G. Hebert - OEDC-QA
- T. V. Abbatiello - DED - QA
- W. D. Poling - OP-QA

b. Contractor Organizations

Chicago Bridge and Iron Company (CB&I)

M. L. Gilmore - Field Foreman
J. C. Eelevyn - Field Engineer, QA

2. Previously Unresolved Item 75-5/1, Procedure Development

TVA Corporate QA procedure approval controls, which were directed to obtaining uniform procedures for all nuclear plant sites, had hindered the timely issuance of needed procedures for Watts Bar. The approval procedure was found to have been changed to permit the issuance of site QA-QC procedures where no appropriate DEC procedure has been issued.

This change had permitted the issuance of WBNP-QCP1.9 (Superseding DEC-QCP 1.9) "Disposition and Documentation of Engineering Change Notices," approved and issued on June 16, 1975.

The concerns on control of ECN's, their records control and retention, and the site records retention system implementation were being alleviated at the time of this inspection.

The ECN coordinator stated that the backlog of ECN was being reduced. This item is closed.

3. Previously Unresolved Item 75/2, IE Bulletin No. 75-03 "ASCO Solenoid Valves"

Procurement documents for ASCO valves for Watts Bar have been amended to assure modifications of valves of the specific models covered by the IE bulletin. At the site, the construction engineer has directed that the Materials Computer Program readout for the valves have notations requiring receiving inspectors to tag any valve if vendor data does not verify that the required modifications have been completed. The field forces will be required to modify any valve not modified by the factory. The DEC QA group has copies of the detailed ASCO instructions for modification and are to audit implementation of modifications. This item is closed.

4. Previously Unresolved Item 75-5/3, IE Bulletin No. 75-05 "Operability of Category I Hydraulic Shock and Sway Suppressors"

Page 8 of TVA letter dated May 14, 1975, to IE:II on this subject had been inadvertently left out of the letter. A copy of this page was obtained at the site. Procurement requirements for Watts Bar hardware outlined on this page appear to assure the receipt of acceptable suppressors. This item is closed.

5. Previously Unresolved Item 75-3/1, Regulatory Operations Bulletins and Licensee Responses

The status of three of the listed ROB's was discussed with a DED-QA representative during the inspection:

ROB 74-6 - "Defective Westinghouse Type W-2 Control Switch Component"

Westinghouse has assured TVA that this bulletin is not applicable to Watts Bar switches. This item is closed.

ROB 74-9 - "Deficiency in General Electric Model KV Magne-Blast Circuit Breakers"

The model switchgear covered by the bulletin is not being supplied to Watts Bar. GE has not yet confirmed to TVA that the GE M36 switchgear being furnished does not contain the objectionable features of the subject gear; so this item will remain open.

ROB 74-11 - "Improper Wiring on Safety Injection Logic"

W has certified by letter that the bulletin is not applicable to Watts Bar equipment. This item is closed.

6. Previously Unresolved Item 74-5/1, Valve Wall Thickness Verification Program

TVA has not completed contractual agreements with the NSS supplier, W, to provide for the required degree of dimensional control and documentation for valves under procurement; so the item remains unresolved.

7. Intake Pumping Station

Work on erection of the intake pumping station, a Class I seismic structure, had been suspended after approximately 40% of the reinforced concrete had been placed. TVA had not been able to place a procurement order for the eight intake cooling water pumps with the requested intake piping diameter. Work is expected to resume as soon as a firm order is placed for the pumps or at the latest by October 1975.

A visual inspection was made of completed concrete work. No items of noncompliance were noted. A review was made of 16 pour cards for placements made between September 13, 1974 and January 2, 1975. Required data had been recorded and required signatures obtained. Embedded piping sections had been fabricated on site. The field fabrication shop releases were reviewed and were found to have been signed by a civil engineer. The requests for shipment of material carried QA approval of material used.

Shop QC inspection reports were not available in the QC & Records Engineering Unit files on July 11, 1975. These inspection reports will be reviewed during subsequent routine inspection.

8. Design Investigations For Piping Between Intake Pumping Station and Turbine Buildings

TVA field parties were making additional investigations of the earth structure at various depths in the areas of possible routing of the piping. The testing and packaging of soil samples and the recording of soil conditions and types at various depths were observed.

The inspector was told that this additional investigation work and design effort were due to two principal concerns: (1) the possibility of the collapse of a 506-foot high cooling tower across the piping, and (2) liquefaction of the soil bed during an earthquake. The resulting pipeline drawings will be reviewed as soon as they are available.

10. Delay of Reactor Supports

Reactor support hardware had not been procured. Site personnel had made work around provisions to permit progress on structural concrete. The licensee is faced with a schedule disruption unless the supports become available in the near future. The inspector was told that TVA is considering fabrication of the supports to make up the imminent negative schedule impact.

11. Diesel Generator Building

The inspector observed that the 16 diesel fuel storage tanks (17,000 gallon capacity each) had been grouted to the bottom portion of the building base slab and connecting tank assemblies had been installed. Forms were near completion for placing the remainder of the base slab which will embed the fuel tanks. A visual inspection was made of the completed tank assemblies and preparations for concrete placement. No items of noncompliance were noted.

11. Steel Containment Erection - Unit 1

- Attempts to correct for plate warpage on the vertical walls of the reactor pit liner by grouting behind the plates had been abandoned and CB&I had replaced plates 14-5R/L with 14-19R/L and replaced plates 14-9R/L with plates 14-20R/L. The QC records and liner section maps for these replacements were found to be in order.

CB&I had moved out of Unit 1 reactor building, as scheduled, to permit TVA erection of the polar crane wall. CB&I will move back to Unit 1 in February 1976 and mount their crane on the wall for placing the remainder of the steel containment.

12. Steel Containment Erection - Unit 2

During the inspection, CB&I was adjusting the first two sections, 34-A and 35-A of the bottom ring of the containment wall. The anchor assemblies were being adjusted to correct elevation over the anchor bolts and the two panels were being adjusted laterally to position penetrations precisely. No welding was performed in the containment during the inspection. The shop release and HT documents were found to be acceptable.

Prefabricated sections of the curved circular sections of the transition (knuckle) ring which will join the $\frac{1}{2}$ " floor plate to the $1\frac{1}{2}$ " wall plate had been welded together in the site storage and fabrication yard. The welds had been ground, radiographed and accepted. No weld had needed repair. The inspector reviewed the radiographs and found no item of noncompliance in the radiographs or welds.

On July 10, 1975, TVA placed a concrete pad in CB&I's yard on which CB&I will place templates to allow ground level joining of three panel assemblies of the containment dome gore sections. They will also assemble four panel sections of the wall rings in the yard. The inspector was told that there are no present plans to hoist complete wall rings or a completed dome at Watts Bar although an 80 ton assembly had been hoisted by CB&I at another site.

Delivery of materials from CB&I shops to the site has been behind schedule; therefore, site workmen have been fabricating the components for, and erecting the hoist mounted in the reactor cavity which will be used in construction of the Unit 2 steel containment vessel.

The records of qualification of CB&I site personnel were available. The qualification test records for the welders were reviewed. One welder was tested June 25, 1975 to Procedure F-4; a second welder was requalified to Procedure F-4 in April for all four positions; and a third welder was qualified April 15, 1975, to Procedure WPS-III-9109. The radiograph of a welder applicant shows a string of slag inclusions; so he was rejected.

No items of noncompliance were found in the records of site work on the containments.

13. Polar Crane Wall - Unit 1 RB

On July 8, an 8 cubic yard placement, RB-1C2a, was made in the bottom ring of the crane wall at the access frame; and on July 9, a 70 cy placement was made. Preparations for the placement and placement were observed. No items of noncompliance were detected.

A comprehensive audit, WB-C-75-08, had been made by the DEC QA group on July 16-20, 1975 of concrete pour RBI-C1a, the first placement in the polar crane wall. The auditors found deficiencies in the inspection and documentation of embedments, in failure to check the concrete temperature at the point of placement, and in curing the concrete. Immediate corrective actions had been taken by the Mechanical Engineering Unit on the first and by the Materials Engineering Unit on the other two. No repetition of these deficiencies was noted in documentation on subsequent pours or observed during the inspection. Discussions were held with the supervisor and inspectors of the materials engineering unit. The nature of the deficiencies for this particular placement did not appear to warrant a followon engineering evaluation or core sampling.

Nevertheless, the deficiencies found and reported by the licensee constitute a noncompliance with the licensee's quality control and construction procedures which implement Criterion IX Control of Special Processes, Criterion X Inspection and Criterion XI Test Control of Appendix B to 10 CFR 50.