

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

*Reverta Facilities  
Branch*

FEB 18 1976

In Reply Refer To:  
IE:II:VLB  
50-390/76-1  
50-391/76-1

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 January 12 and 19, 1976, of activities authorized by NRC Construction Permit Nos. CPPR-91 and CPPR-92 for the Watts Bar Nuclear Plant, Units 1 and 2 facilities, and to the discussions of our findings held with Mr. R. L. Pierce on January 12 and M. Bressler on January 19, 1976, 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.

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



Tennessee Valley Authority

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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,



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

Enclosure:  
IE Inspection Report Nos.  
50-390/76-1 and 50-391/76-1

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



UNITED STATES  
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IE Inspection Report Nos. 50-390/76-1 and 50-391/76-1

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

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: Announced, Construction

Dates of Inspection: January 12 and 19, 1976

Dates of Previous Inspection: November 5-7 and 13-14, 1975

Principal Inspector: V. L. Brownlee, Reactor Inspector  
Projects Section  
Reactor Construction and Engineering Support Branch

Accompanying Inspectors: E. O. Porter, Reactor Inspector (January 12, 1976)  
Engineering Support Section No. 2  
Reactor Construction and Engineering Support Branch

A. R. Herdt, Metallurgical Engineer (January 19, 1976)  
Engineering Support Section No. 2  
Reactor Construction and Engineering Support Branch

Other Accompanying Personnel: None

Principal Inspector: V. L. Brownlee 2/13/76  
V. L. Brownlee, Reactor Inspector Date  
Projects Section  
Reactor Construction and Engineering  
Support Branch

Reviewed by: J. C. Bryant 2/13/76  
J. C. Bryant, Section Leader Date  
Projects Section  
Reactor Construction and Engineering  
Support Branch

SUMMARY OF FINDINGS

I. Enforcement Items

None

II. Licensee Action on Previously Identified Enforcement Matters

75-8-A1 (II) Vendor QA Audits (Units 1 and 2)

TVA has submitted a letter of response, dated November 10, 1975, which identified the corrective actions and plans. IE:II will examine the corrective actions and plans during subsequent inspections.

III. New Unresolved Items

76-1/1 Containment Hold Down Anchor Bolt Nut (Units 1 and 2)

TVA informed Region II of a problem with anchor bolt nuts, and reported it as a 50.55(e) item. Preliminary evaluation indicates that a small percentage of the nuts contain minor forging laps. TVA's investigation is in progress. (Details I, paragraph 2)

IV. Status of Previously Reported Unresolved Items

75-3/1 Regulatory Operations Bulletin and Licensee Response (Units 1 and 2)

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

75-5/1 Valve Wall Thickness Verification Program (Units 1 and 2)

TVA informed IE:II personnel of preliminary plans relative to the valve wall thickness program. TVA will submit a formal valve wall thickness verification program that meets Region II letters of June 30, 1972 and February 16, 1973. This item remains open. (Details II, paragraph 2)

75-8/1 Charpy Impact Test Specimens (Units 1 and 2)

The licensee agreed to review the method of measuring Charpy impact test specimens presently being used to assure traceable calibration. This item remains open.

V. Design Changes

None

VI. Unusual Occurrences

None

VII. Other Significant Findings

None

VIII. Management Interview

Exit interviews were held on January 12, 1976, with Mr. R. L. Pierce, Project Manager, and on January 19, 1976, with M. N. Bressler, Mechanical Engineer. They were apprised of the findings of this inspection as noted in this report.

DETAILS I

Prepared by: E. O. Porter 1/26/76  
E. O. Porter, Reactor Inspector  
Engineering Support Section No. 2  
Reactor Construction and Engineering  
Support Branch  
Date

Dates of Inspection: January 12, 1976

Reviewed by: T. E. Conlon 1/26/76  
T. E. Conlon, Acting Section Leader  
Engineering Support Section No. 2  
Reactor Construction and Engineering  
Support Branch  
Date

The details in this section apply to both Units 1 and 2.

1. Individuals Contacted

a. Tennessee Valley Authority (TVA)

(1) Watts Bar Site

J. C. Killian - Site Project Manager  
J. M. Lamb - Supervisor, Mechanical Engineering Unit  
T. Northern - Construction Engineer  
L. Johnson - Mechanical Engineer

(2) Knoxville Office

W. Joest - Metallurgist  
D. Denton - Civil Engineer  
R. Pierce - Project Manager  
G. Day - Staff Engineer, Steel  
J. S. Colley - Quality Assurance  
R. Giordano - Civil Engineer

b. Contractor Organizations

Chicago Bridge and Iron (CB&I)

M. L. Gilmore - Field Foreman  
J. Harrell - Project Welding and QA Supervisor  
B. Roby - Project Engineer

2. Containment Hold Down Anchor Bolt Nuts

On Friday, January 9, 1976, TVA called NRC, Region II, and notified them of a problem concerning anchor bolt nuts used for anchorage of the containment cylinder and bottom plate liner to the foundation. This inspection was conducted to determine the magnitude of the problem, to observe the types of defects found, and to determine status of TVA actions.

The licensee had conducted a visual inspection of all nuts on Unit 2 anchor bolts. There are two rings of bolts one on the I.D. of the container and one on the O.D.; each ring contains 180 bolts. Eighteen of the 360 nuts had visual indications of varying size. TVA randomly inspected forty nuts, twenty in each bolt ring using MT. Two of these nuts showed indications, which brought the total nuts with indications to 20.

Two of the 20 nuts had been removed and replaced. One of the removed nuts was taken by CB&I for metallurgical evaluation; the other was taken by TVA for the same purpose to their Knoxville Office.

A cursory review of documentation retained by CB&I at the site showed that the nuts had been forged by the Texas Bolt Company from 3 3/4 inch 4140 bar stock supplied by Copperweld Specialty Steel Company. Chemical and mechanical properties were not on hand but were retained by CB&I in their Birmingham office. A manufacturing procedure for the nuts was not available.

The inspector visited the TVA Knoxville office to inspect the nut in their possession since it reportedly contained one of the more significant indications. This indication and others observed by the inspector appeared to be the result of the forging operation.

TVA has not completed their review nor have they completed a plan of action.

In a subsequent telephone call on January 20, 1976, the licensee provided the following information:

- a. The nuts were purchased to ASME SA-194 grade 7 and were within specification requirements.
- b. The nuts had been forged from 3 3/4" bar stock in three steps.
- c. Preliminary evaluation indicates that the defects were the result of the forging process and not the base material.
- d. TVA's report and disposition was not complete but would be forwarded as required by regulations.

DETAILS II

Prepared by:

A. R. Herdt  
A. R. Herdt, Metallurgical Engineer  
Engineering Support Section No. 2  
Reactor Construction and Engineering  
Support Branch

2/12/76  
Date

Dates of Inspection: January 19, 1976

Reviewed by:

T. E. Conlon  
T. E. Conlon, Acting Section Leader  
Engineering Support Section No. 2  
Reactor Construction and Engineering  
Support Branch

2/13/76  
Date

The details in this section apply to both Units 1 and 2.

1. Individuals Contacted

Tennessee Valley Authority (TVA)

M. N. Bressler - Mechanical Engineer  
E. A. Merrick - Metallurgical Engineer  
T. V. Abbatiello - QA Engineer  
J. S. Colley - QA Engineer

2. Valve Wall Thickness Verification Program (75-5/1)

IE:II inspectors met with TVA engineers to discuss the licensee's valve wall thickness verification program.

a. TVA Supplied Valves

The licensee stated that for TVA procured valves all necessary dimensional and certification documentation will be supplied by the vendor. The inspectors reviewed a typical purchase order and design specification, WBNP-DS-1935-2849 RO. The purchase order contained design conditions, seismic requirements and quality assurance requirements consistent with the described program.

b. NSSS Supplied Valves

The licensee stated that at this time it appears that the necessary valve wall thickness documentation will not be supplied by the vendor. The licensee plans to perform the valve wall thickness measurements on-site.



c. Summary

The conclusions reached at this meeting is that TVA will present their final program in writing to IE:II. This item remains open.