



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

MAR 27 1978

In Reply Refer To:
RII:RMC
50-390/78-7
50-391/78-6

Tennessee Valley Authority
Attn: Mr. N. B. Hughes
Manager of Power
830 Power Building
Chattanooga, Tennessee 37401

Gentlemen:

This refers to the inspection conducted by Mr. R. M. Compton of this office on February 28 - March 3, 1978, of activities authorized by NRC Construction Permit Nos. CPPR-91 and CPPR-92 for the Watts Bar 1 and 2 facilities, and to the discussion of our findings held with Mr. H. C. Richardson 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.

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

During the inspection, it was found that certain activities under your license appear to be in noncompliance with NRC requirements. This item and references to pertinent requirements are listed in the Notice of Violation enclosed herewith as Appendix A. This notice is sent to you pursuant to the provisions of Section 2.201 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations. Section 2.201 requires you to submit to this office, within 20 days of your receipt of this notice, a written statement or explanation in reply including: (1) corrective steps which have been taken by you and the results achieved; (2) corrective steps which will be taken to avoid further noncompliance; and (3) the date when full compliance will be achieved.

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

61


Tennessee Valley Authority

-2-

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.

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

Sincerely,


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

Enclosures:

1. Appendix A, Notice
of Violation
2. RII Inspection Report Nos.
50-390/78-7
50-391/78-6

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. C. S. Walker
400 Commerce Street
W9D199
Knoxville, Tennessee 37902

APPENDIX A

NOTICE OF VIOLATION

Tennessee Valley Authority

License Nos.: CPPR-91
CPPR-92

Based on the results of the NRC inspection conducted on February 27 - March 3, 1978, it appears that certain of your activities were not conducted in full compliance with NRC requirements as indicated below. This item has been categorized as described in our correspondence to you dated December 31, 1974.

10 CFR 50, Appendix B, Criterion V as implemented by Watts Bar FSAR Section 17.1A.5, states in part that "Activities affecting quality shall be prescribed by documented instructions, procedures or drawings ... and shall be accomplished in accordance with these instructions, procedures or drawings."

Paragraph 6 of WBNP-QCP-4.5 requires the responsible engineer to check stored mechanical equipment for visible deterioration and adequate protection from the environment. Equipment Storage and Maintenance Record Sheet (Attachment A to QCP-4.5) for the reactor coolant pump internals specifies that they are to be inspected for evidence of moisture and rust. QCP-4.5 also requires when deficiencies are noted, the inspecting engineer to initiate any necessary corrective action and verify correction of the condition.

Contrary to the above, although records indicate that inspections were performed monthly as required, steel capscrews on all eight of the stored reactor coolant pump internals were extensively rusted. The capscrews appear to have been in the condition for a long time. Therefore, the inspecting engineer(s) apparently did not initiate the necessary corrective action for this condition.

This is a deficiency.



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Report Nos.: 50-390/78-7 and 50-391/78-6

Docket Nos.: 50-390 and 50-391

License Nos.: CPPR-91 and CPPR-92

Categories: A2 and A2

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

Facility Name: Watts Bar 1 and 2

Inspection at: Watts Bar site, Watts Bar Dam, Tennessee

Inspection conducted: February 28 - March 3, 1978

Inspector: R. M. Compton

Reviewed by:

J. C. Bryant
J. C. Bryant, Chief

Engineering Support Section No. 1

Reactor Construction and Engineering Support Branch

3/24/78
Date

Inspection Summary

Inspection on February 28 - March 3, 1978 (Report Nos. 50-390/78-7 and 50-391/78-6)

Areas Inspected: Reactor vessel installation; reactor vessel internals; safety-related components; concrete expansion anchor installation. The inspection involved 25 inspector hours on site by one NRC inspector.

Results: Of the four areas inspected no apparent items of noncompliance or deviations were identified in three areas; one item of noncompliance (deficiency - failure to follow procedures for storage/maintenance inspections - Paragraph 4) was identified in one area.

DETAILS I

Prepared by: R. M. Compton 3/23/78
R. M. Compton, Civil Engineer Date
Engineering Support Section No. 1
Reactor Construction and Engineering
Support Branch

Dates of Inspection: February 28 - March 3, 1978

Reviewed by: J. C. Bryant 3/24/78
J. C. Bryant, Chief Date
Engineering Support Section No. 1
Reactor Construction and Engineering
Support Branch

1. Persons Contacted

a. Tennessee Valley Authority (TVA)

T. B. Northern, Jr., Project Manager
*H. C. Richardson, Construction Engineer
*J. M. Lamb, Mechanical Engineering Unit Supervisor
*R. L. Heatherly, Quality Control and Records Unit Supervisor
*A. W. Rogers, WBNP QA Supervisor
*L. J. Johnson, Mechanical Engineering Unit Group Leader

b. Westinghouse Electric Company (W)

W. Suvak, Mechanical Engineer

The inspector also talked with various site craft, engineering, QA and Records Unit personnel.

*Denotes those present at the exit interview.

2. Licensee Actions on Previous Inspection Findings

This area was not inspected.

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. An unresolved item disclosed during the inspection is discussed in Paragraph 7.

4. Independent Inspection Effort

- a. The inspector reviewed the following procedures and quality records concerning the installation of concrete expansion anchor bolts:

- (1) TVA General Construction Specification G-32, "Bolt Anchors Set in Hardened Concrete"
- (2) WBNP-QCP-1.14, "Production Lot Acceptance Tests of Expansion Type Bolt Anchors"
- (3) Test data reports (approximately 280) and drawings detailing lot sizes and anchors tested.

The above documents were evaluated regarding the scope of instructions, adequacy of the inspection/test program and proper implementation of the test program.

The inspector also reviewed QA Audit WB-G-76-05, relating to testing of expansion anchors, for completeness and proper resolution of findings.

No items of noncompliance or deviations were identified.

- b. The inspector examined the in-place storage conditions of the reactor, reactor vessel head and reactor internals and the shed storage conditions of the reactor coolant pump internals for both Units 1 and 2. Storage and maintenance recommendations and requirements for these components are delineated in the following documents:

W NSSS Component Receiving and Storage Criteria
W Reactor Coolant Pump Instruction Manual
W NPS QA-1
W Long Term Component Storage Requirements
Rotterdam Dockyard Company Instruction Manual (Reactor Vessel)
WBNP-QCP-4.5, "Handling Storage and Maintenance of Permanent Mechanical Equipment"
WBNP-QCP-1.6, "Receipt Inspection, Storage, Withdrawal and Transfer of Permanent Material"

On the eight reactor coolant pump internals the inspector noted extensive rusting of one inch and two inch diameter carbon steel capscrews mounting the pump seal housings and rust staining of the stainless steel pump flanges. Paragraph 6.3 of QCP-4.5 requires the inspecting engineer to check for visible deterioration and adequate protection from the environment. The Equipment Storage and Maintenance Record Sheet (Attachment A to QCP-4.5) for the pump internals specified a monthly inspection for evidence of moisture and rust. Paragraph 6 of QCP-4.5 also requires that, when deficiencies are noted, the engineer initiate the necessary corrective action and verify correction.

The failure to follow the inspection procedure of QCP-4.5 appear to be in noncompliance with 10 CFR 50, Appendix B, Criterion V and is identified as deficiency 390/78-07-01 and 391/78-06-01. This is not classified as an infraction since damage to the pump as a result of the lack of action is considered to be extremely remote.

5. Reactor Vessel Installation - Review of Quality Records (Units 1 and 2)

The basic reactor vessel and head installation procedure is Watts Bar Field Instruction (FI) M-11 which references applicable TVA and Westinghouse drawings and procedures. Detailed steps with status signoffs and inspection HOLD points are provided by manufacturing and Installation Quality Plans (MIQP) and MIQP Operations Sheets. Additional requirements and acceptance criteria are contained in WBNP QCP's - 1.6, 1.18, 4.5 and 4.7 and the W and Rotterdam documents referenced in paragraph 4.b above. The inspector examined the following quality related documents:

MIQP's 1-68-F-1 and 2-68-F-2
MIQP Operations Sheets 1-68-F-1-13, 1-68-F-1-21, 2-68-F-1-6
and 2-68-F-1-24
Master Checklists for Class A Lifts (Attachment 2 to QCP-1.18)
QA Audits WB-M-76-09 and WB-M-77-02
Equipment Storage and Maintenance Records Sheets

No items of noncompliance or deviations were identified.

6. Reactor Vessel Internals - Review of Quality Assurance Implementing Procedures (Units 1 and 2)

The inspector reviewed the procedures outlined below for conformance to NRC requirements and licensee commitments of FSAR Sections 4. and 17.

Placement of reactor vessel internals into reactor building storage from the shipping barge and intermediate storage areas was accomplished in accordance with WBNP-FI-M-11, MIQP's 1-68F-1 and 2-68-F-1 and MIQP Operations Sheets 1-68-F-1-20, 1-68-F-1-21, 2-68-F-1-25 and 2-68-F-1-26. Provisions for testing equipment, controlling and documentation of all lifts and transports are contained in WBNP-QCP-1.18.

The reactor vessel internals are being assembled as a field fabrication operation of the W Pensacola Division with engineering and QA/QC functions to be performed by W. WBNP will provide the craft manpower and maintain a surveillance program of the work activities. The W Nuclear Services Division Technical Operations Manual outlines the responsibilities, prerequisites, tooling, manpower, and documentation required for internals assembly. The manual also contains QA Engineering procedure PE-12-11-001, "Field Surveillance", outlining W QA responsibilities, the documentation and resolution of field deficiencies and deviations, issuance of a final Quality Release, etc. W Specification 616A407 provides general requirements and detailed sequential steps for internals assembly. Steps requiring QA verification of data recording are clearly marked. WBNP surveillance of assembly work will be governed by WBNP QCP-4.19 which implements TVA Construction QAP-7.02. TVA Construction QAP 13.01 and WBNP-QCP's-1.6 and 4.5 provide for proper storage and maintenance of the internals.

No items of noncompliance or deviations were identified.

7. Safety-Related Components II - Review of Quality Records (Units 1 and 2)

The components selected for this inspection were the eight reactor coolant pump casings and internals assemblies and the four containment spray heat exchangers.

The inspector examined receipt inspection and material certification packages for the above components for conformance to WBNP-QCP's-1.6 and 1.8. These packages included Receiving Reports, Receiving Inspection Checklists, Supplier Quality Releases, Manufacturers Data Reports and TVA Inspection and Test Reports. Required documents that were not on file were documented on open Nonconformance Reports, with the following exception. The licensee was unable to locate the ASME Code Data Report for Unit 1 reactor coolant pump casing Serial 923 prior to the end of this inspection. Receiving documents indicated the report had been received with casing. Pending licensee location of this Data Report, this is identified as Unresolved Item 390/78-07-02.

Equipment Storage and Maintenance Records Sheets (Attachment A to QCP-4.5) for the pump internals and the containment spray heat exchangers were examined for conformance to WBNP QCP's 1.6 and 4.5 and W storage and maintenance information. One item of noncompliance, previously discussed in paragraph 4, was identified.

MIQP Installation Operations Sheets for the reactor coolant pump casings and for the containment spray heat exchangers up to piping fitup were examined for conformance with WBNP-QCP-4.7.

The inspector reviewed two QA Audits applicable to safety-related components, WB-M-77-04 and WB-M-78-01, for required frequency, proper resolution of findings and qualifications of the auditors.

Except as noted above no items of noncompliance or deviations were identified.

8. Exit Interview

The inspector met with licensee representatives (identified in paragraph 1) at the conclusion of the inspection on March 3, 1978. The inspector summarized the scope and findings of the inspection of reactor vessel installation, reactor vessel internals, safety-related components and concrete expansion anchor installation. Licensee personnel stated that corrective actions were being taken concerning the noncompliance identified in paragraph 4.