



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION II  
101 MARIETTA STREET, N.W.  
ATLANTA, GEORGIA 30303

Report Nos.: 50-390/78-23 and 50-391/78-20

Docket Nos.: 50-390 and 50-391

License Nos.: CPPR-91 and CPPR-92

Category: A2/A2

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

Facility Name: Watts Bar 1 and 2

Inspection at: Watts Bar Dam, Tennessee

Inspection conducted: September 19-22, 1978

Inspectors: W. P. Ang  
W. Miller (In-Training)  
J. C. Bryant

Reviewed by: J. C. Bryant  
J. C. Bryant, Chief  
Engineering Support Section No. 1  
Reactor Construction and Engineering Support Branch

11/15/78  
Date

Inspection Summary

Inspection on September 19-22, 1978 (Report Nos. 50-390/78-23  
and 50-391/78-20)

Areas Inspected: Reactor Vessel Installation (Unit 1); Reactor Vessel Internals (Units 1 & 2); Safety-Related Components (Units 1 & 2); Ultrasonic Testing (Unit 2). The inspection involved 36 inspector-hours on site by two NRC inspectors.

Results: Of the four areas inspected, no apparent items of noncompliance or deviations were identified in two areas; two items of noncompliances (Infraction - Failure to follow procedures for RV maintenance and for chemical and volume control system pump inspection records (390/78-23-01); Deficiency - Failure to follow procedure for qualification of auditors (390/78-23-02)) were identified in two areas.

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DETAILS I

Prepared by: W. P. Ang 10-26-78  
W. P. Ang, Mechanical Engineer  
Engineering Support Section No. 1  
Reactor Construction and Engineering  
Support Branch Date

Dates of Inspection: September 19-22, 1978

Reviewed by: J. C. Bryant 10/30/78  
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., Plant Manager
- \*H. C. Richardson, Construction Engineer
- \*A. W. Rogers, QA Supervisor
- \*J. A. Morgan, Mechanical Engineering Unit Assistant Supervisor
- L. C. Northard, Jr., Welding and NDE Unit Supervisor
- L. J. Johnson, Mechanical Engineer - Group Leader
- J. D. Shanlever, Mechanical Engineer - Group Leader

b. Westinghouse Electrical Corporation (W)

J. E. Murtaugh, W Pittsburgh - Field Engineer

\*Denotes those present at the exit interview.

2. Licensee Actions on Previous Inspection Findings

Licensee actions on previous inspection findings were not reviewed during this inspection.

3. Unresolved Items

No unresolved items were identified during this inspection.

4. Independent Inspection Effort

This inspection effort concerned the ultrasonic inspection of weld No. 2-293-T001-95, a Unit 2 ASME CL2 electrical penetration weld located in the reactor building annulus at elevation 734 feet.

The following documents were reviewed and used as sources of information for this inspection effort.

- a. TVA Process Specification 3.M.7.1(a) - Specification for Ultrasonic Examination of Weld Joints.
- b. WBNP-QAP-2.05 - Qualification, Training, and Certification requirements of nondestructive examination personnel.

The inspector observed the ultrasonic inspection of the weld, examined the weld record and examined the qualification records for the two ultrasonic test examiners involved. No items of noncompliance or deviations were identified.

5. Reactor Vessel Installation - Observation of Work and Work Activities (Unit 1)

Licensee PSAR commitments in this area were reviewed. PSAR Sections 1.7 and 4, and Appendix "A" were reviewed. Licensee action to protect the installed vessel was inspected. WBNP QCP-4.10, Appendix "E", contained applicable cleanliness preservation requirements.

The reactor vessel was found to be empty except for a wooden ladder. The wooden ladder had been coated with fire retardant paint. The reactor vessel was covered with sheets of fire retardant treated plywood. The cover was raised approximately two feet in one area. Nobody could be seen working in or around the immediate area of the vessel. WBNP QCP 4.10, Appendix "E", paragraph 6.3.6.3.4, states in part that ". . . During the entire time the seals and closures are removed, the opening or other access to exposed surfaces shall be under continual direct surveillance . . .". Paragraph 6.3.6.3.5 states in part that ". . . If it becomes necessary to leave an open item temporarily unattended, the protective cover and seal shall be re-installed." The failure to follow WBNP QCP 4.10, Appendix "E", appears to be in noncompliance with 10 CFR 50, Appendix "B", Criterion V. This noncompliance has been identified as one of three examples of an infraction, 390/78-23-01.

6. Reactor Vessel Internals - Observation of Work and Work Activities (Units 1 and 2)

Licensee PSAR commitments in this area were reviewed. PSAR Sections 1.7, 3, 4 and Appendix "A" were reviewed. The Unit 2 reactor vessel internals were inspected for protection during in place storage. The reactor vessel lower internals was stored in the reactor vessel. The

reactor vessel head was also in place on the reactor vessel. The upper internals were still wrapped with canvas and were stored inside a sheet metal house in the refueling canal. No items of noncompliance or deviation were identified.

Modification of Unit 1 upper reactor vessel internals was in progress. The inspector observed machining work being accomplished as part of the modification. W procedure 1 WR 64078 WAT was examined. A W field engineer from the Pittsburgh office was in the work area. The inspector discussed portions of the modification work with the W field engineer. No items of noncompliance or deviation were noted.

7. Safety-Related Components - Observation of Work and Work Activities  
(Units 1 and 2)

PSAR Sections 1.7.4.6, 9 and Appendix "A" were reviewed to determine licensee commitments in this area. The four (two per unit) chemical and volume control charging pumps were selected for this inspection. The following TVA drawings, procedures and documents were reviewed and used to verify location, orientation details, installation and inspection requirements.

47W406 R8 - Chemical and Volume Control Piping

WBNP QCP 4.7 - Mechanical Equipment Installation Standard Inspection  
and Documentation

WBNP QCP 1.8 - Quality Assurance Records

MIQP - Operation Sheet No. 2-62-F-1-3 - Pump 2B-B

MIQP - Operation Sheet No. 2-62-F-1-4 - Pump 2A-A

MIQP - Operation Sheet No. 1-62-F-1-3 - Pump 1B-B

MIQP - Operation Sheet No. 1-62-F-1-4 - Pump 1A-A

Pacific Pump Technical Manual No. 2700

Pacific Pump Dwg. FC-48590 - Foundation

All four pumps had been installed in their designated locations and foundations. All four pumps had been level checked and preliminary alignment had been accomplished. All four pumps had been grouted. Connection of piping to all four pumps had not yet been completed and final alignment of the pumps is still to be accomplished. The inspector

reviewed the operation sheets for the four pumps and attempted to identify the acceptance criteria used for the various signoffs on the operation sheets. The operation sheets did not identify the acceptance criteria used for Step 9, "level of pumps", of the operation sheet. The TVA mechanical engineers could not verify the acceptance criteria used for the level of the pumps. WBNP QCP 4.7, paragraph 6.3.1.1, states that "The equipment shall be set to correct elevation and location (line and grade) within  $\pm 1/8$ " of drawing dimensions, and shall be level and/or plumb to manufacturers specification".

Step 9 of the operation sheets for all four pumps had been signed off verifying that the pumps were plumb and level but the manufacturers specifications were neither listed nor referenced.

The operation sheets contained numerous corrections made with white correction fluid, erasures, and obliteration. The corrections were neither initialed nor dated. WBNP QCP 1.8, paragraph 6.13, states that "Quality assurance records may be corrected by marking through the error with one line, inserting the correction above it, initialing, and dating this modification by an authorized person. Erasures are unacceptable."

The above two noted examples of failure to follow procedures appear to be in noncompliance with 10 CFR 50, Appendix "B", Criterion V. These two examples are identified as two of three examples of an infraction, 390/78-23-01.

The inspector reviewed TVA Construction QAP 18.01 R2 - Auditing Construction Activities, and examined Audit Nos. WB-M-77-04, WB-M-78-04 and WB-M-78-05. The inspector also reviewed the certification for the auditors involved. One of three auditors listed on audit WB-M-78-04 and two of four auditors listed on audit WB-M-78-05 had not been certified as an auditor by the auditor examiner. TVA Construction QAP 2.08 R2, paragraph 6.1.2, states that "Personnel performing quality assurance audits shall be certified by the auditor examiners as lead auditor/auditor within the scope of this audit". The inspector discussed the subject with the QA supervisor and the individuals involved. The QA supervisor agreed that the individuals involved should have been listed as "Auditors-in-Training" in lieu of "Auditors". The QA supervisor and the individuals involved indicated that they had not performed actual auditor functions for the noted audits and in fact were part of the noted audits as trainees only. The failure to follow procedure is in noncompliance with 10 CFR 50, Appendix "B", Criterion V, and has been identified as a deficiency, 390/78-23-02.

8. Exit Interview

The inspector met with the licensee representatives denoted in paragraph 1 at the conclusion of the inspection. The inspector summarized the scope and findings of the inspection of safety-related components, reactor vessel internals, reactor vessel installation and ultrasonic testing. The inspector discussed with the licensee the noncompliances listed in paragraphs 5 and 7 (390/78-23-01 and 390/78-23-02).