



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

Report Nos.: 50-390/84-82 and 50-391/84-56

Licensee: Tennessee Valley Authority
500A Chestnut Street
Chattanooga, TN 37401

Docket Nos.: 50-390 and 50-391

License Nos.: CPPR-91 and CPPR-92

Facility Name: Watts Bar 1 and 2

Inspection Conducted: October 21 - November 20, 1984

Inspectors: <u><i>S. Weise for</i></u>	<u>12/12/84</u>
M. B. Shymlock	Date Signed
<u><i>S. Weise for</i></u>	<u>12/12/84</u>
W. E. Holland	Date Signed
<u><i>S. Weise for</i></u>	<u>12/12/84</u>
C. W. Caldwell	Date Signed
Approved by: <u><i>S. Weise</i></u>	<u>12/12/84</u>
S. P. Weise, Section Chief	Date Signed
Division of Reactor Projects	

SUMMARY

Scope: This routine, announced inspection entailed 267 resident inspector-hours on site in the areas of followup on inspector identified items, followup on licensee identified items, fire protection and fire prevention, preoperational test program implementation verification, Chemical Control System preoperational test procedure review, review and followup of Safety Evaluation Report, welding of safety related piping, and independent inspection effort.

Results: No violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees Contacted

W. T. Cottle, Site Director
R. M. Pierce, OEDC Project Manager for Watts Bar
*E. R. Ennis, Plant Manager
G. Wadewitz, Construction Project Manager
*B. S. Willis, Operations and Engineering Superintendent
H. B. Bounds, Maintenance Superintendent
D. W. Wilson, Design Services Manager
*R. Norman, Jr., Operations Supervisor
*T. L. Howard, Quality Engineering Supervisor
R. C. Miles, Modifications Manager
C. E. Wood, Jr., Electrical Maintenance Supervisor
M. K. Jones, Engineering Supervisor
R. A. Beck, Health Physics Supervisor
J. S. Woods, Instrument Maintenance Supervisor
J. L. Collins, Mechanical Maintenance Supervisor
*R. C. Sauer, Plant Compliance Supervisor
W. L. Byrd, Preoperational Test Supervisor
H. K. Fischer, Construction Engineer
C. H. Jetton, General Construction Superintendent
S. Johnson, Jr., Quality Manager - Construction
T. W. Hayes, Nuclear Licensing Unit Supervisor
L. C. Miller, Head, Plant Quality Engineering and Control Group
H. L. Pope, Supervisor, Plant Quality Control Section
L. J. Smith, Supervisor, Quality Surveillance Section
S. M. Anthony, Plant Compliance Staff, Mechanical Engineer
*J. E. Englehart, Plant Compliance Staff, Nuclear Engineer
R. T. McCollom, Plant Compliance Staff, Instrument Engineer
R. E. Yarbrough, Jr., Assistant Operations Supervisor
R. e. Bradley, Assistant Operations Supervisor
*D. O. McCloud, Quality Assurance Evaluator
*P. L. Candage, Mechanical Maintenance Engineering Section

Other licensee employees contacted included engineers, technicians, nuclear power supervisors, and construction supervisors.

NRC Personnel

*S. P. Weise, Section Chief

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on November 20, 1984, with those persons indicated in paragraph 1 above. At no time during the inspection period did the inspectors provide written material to the licensee.

3. Licensee Action on Previous Enforcement Matters (92702)

Licensee action on previous enforcement matters was not inspected during this period.

4. Followup On Inspector Identified Items (92701)

(Closed) IFI 390/83-56-02, Electrical System discrepancies. The subject discrepancies were identified by the inspector during a walkdown of the Electrical System as outlined in Inspection Report No. 390/83-56. The licensee corrected the discrepancies, and the inspector verified the corrective action. The inspector also conducted a reinspection of selected portions of the Electrical System. During this reinspection, no additional discrepancies were identified.

5. Followup On licensee Identified Items (92716)

(Closed) CDR 390/83-62, 391/83-57; Loading on Diesel Generator for LOCA and Blackout causing unacceptable Frequency Transient. This deficiency identified a design loading problem with regards to Emergency Diesel Generator operation under Loss of Coolant (LOCA) and blackout conditions where the analysis showed an unsatisfactory frequency transient. The licensee evaluated the deficiency and concluded that changes were required to the automatic sequential loading of all four Emergency Diesel Generators during blackout/LOCA loading conditions. The modifications necessary to implement the changes were accomplished under Engineering Changes Notices (ECNs) 4479 and 4613 for Unit 1, and ECNs 4480 and 4614 for Unit 2.

The inspector verified that all work required to be accomplished by the ECNs for both units is complete by reviewing the ECN packages, by reviewing the FSAR to assure required changes have been incorporated, and by reviewing test requirements to assure that proper retest has been performed after the modifications were accomplished. The inspector considers that all actions required to close these items are complete.

6. Fire Prevention and Fire Protection (42051)

During plant tours, the inspectors conducted observations of fire prevention and protection activities in areas containing combustible materials where ignition of these materials could damage safety-related structures, systems or components. The observations included verification that applicable requirements of Administrative Instruction (AI) 9.9 (Torch Cutting, Welding, and Open Flame Work Permit), Standard Practice WB 12.6 (Fire Brigade Instructor's Guide and Fire Brigade Handbook), AI 1.8 (Plant Housekeeping)

and WBNP Quality Control Instruction (QCI) 1.36 (Storage and Housekeeping) were being implemented with regards to fire prevention and protection.

The inspectors looked specifically at all the elevations in the Auxiliary Building and identified no violations or deviations during this inspection.

7. Preoperational Test Program Implementation Verification (71302)

The inspectors conducted routine tours of accessible areas of the facility to make an independent assessment of equipment conditions, plant conditions, security, and adherence to regulatory requirements. The tours included a general observation of plant areas to determine if fire hazards existed, observation of activities in progress (e.g., maintenance, preoperational testing, etc.) to determine if they are being conducted in accordance with approved procedures, and observation of other activities which could damage installed equipment or instrumentation. The tours also included evaluation of system cleanliness controls and a review of logs maintained by test groups to identify problems that may be appropriate for additional followup. No violations or deviations were identified during this inspection.

8. Chemical Control System Preoperational Test Procedure Review (70533)

On November 16, 1984, the inspector reviewed preoperational test procedure W2.2 (Boric Acid System), which was performed in 1983 and 1984. The inspector conducted the review to determine if this test met Final Safety Analysis Report (FSAR) Chapter 14 commitments, all prerequisites for performance of the test were accomplished, proper methods of changing the test procedure were used, proper methods for identifying deficiencies and their resolutions were used, all acceptance criteria were met by the data, and good control over the test procedure was maintained.

During review of the procedure, the inspector noted that flow tests revealed that certain valve operators were incorrectly interchanged during construction and that a maintenance request was generated to correct the problem. In addition, Quality Control Procedure (QCP)-4.29 was replaced by QCP-4.10-3 and QCP-4.10-9 to prevent this error from recurring. The inspector also noted that several valves were found out of position during the test procedure. These valves were repositioned as required to complete the test and Preoperational Test Program Instruction Letter (IL)-16 was revised to assure that valve lineup errors not occur in the future.

The inspector verified that performance of all steps in the test procedure would satisfy the licensee's commitments as described in the FSAR. This was accomplished by satisfactory completion of all prerequisites and proper identification and documentation of changes and deficiencies.

During review of the procedure data and results, the inspector noted that certain components may need to be replaced and retested and that certain acceptance criteria were not met. These are as follows:

- Flow transmitter, 1FT-62-139, is a temporary component and may need to be replaced with a different type permanent flow meter. This will be required by Exception Notice (EN)-2, if the change to a 4% boric acid solution from the 12% solution currently used is accepted.
- The Boron Injection Tank (BIT) recirculation flow meters may need to be changed as described in Deficiency Notice (DN)-22 if the BIT is to be used with a 12% boric acid system.
- The Boric Acid Filter differential pressure (dp) gages show a dp that is different from that required by the FSAR. This discrepancy is due to the location of the gages in the system as noted in DN-25, and the FSAR will be changed to reflect the true reading obtained.
- The discharge pressure on the boric acid pumps does not meet Acceptance Criterion 6.3. The FSAR will be changed to reflect the true pressures obtained.
- The boric acid pumps failed to shift speeds after the reactor makeup signal cleared as required by acceptance criterion 6.11. The controllers will be rewired to correct this problem by DN-36 and DN-37.
- The installation and interface establishment of heat trace on the Boric Acid System do not meet Acceptance Criterion 6.12. The heat trace portion of the system will be completed and tested by EN-40 and EN-41.

Followup of these changes is identified as inspector followup item 390/84-82-01. No violations or deviations were identified during this inspection.

9. Review and Followup of Safety Evaluation Report (92718)

(Open) 390/84-35-04 Review of Control Room Design per Appendix D of the Watts Bar Safety Evaluation Report, NUREG-0847. A meeting was held with the licensee to discuss their plans for the Detailed Control Room Design Review (DCRDR) team. The licensee plans to conduct operating experience review and control room survey (checklist) per Special Engineering Procedure EN DES-SEP 82-17, Control Room Design Reviews, for the Watts Bar Nuclear Plants by February 1, 1985. The team's plans were discussed with cognizant licensee personnel to determine how this task would be accomplished. The inspector also discussed the need to identify human factor-related changes that have been accomplished at Sequoyah Nuclear Plant and review these changes for applicability at Watts Bar. These Sequoyah control board changes (e.g. painting of certain control switches international orange and addition of covers to switches) have been identified through operational experience. This item will be identified as inspector followup item 390/84-82-02.

10. Independent Inspection Effort (92706)

- a. The licensee's program for review of operating experience both inside and outside TVA as described in Standard Practice WB 6.2.13, Nuclear Operations Experience Review Program, was reviewed by the inspector. It was noted that the program, as described, was not fully implemented as exemplified by the non-receipt of licensee event reports from Sequoyah Nuclear Plant. Until the program is fully implemented per WB 6.2.13, this is inspector followup item 390/84-82-03.
- b. The inspector reviewed Technical Instruction (TI)-8, Revision 2, Shutdown Margin Calculations, and TI-23, Revision 2, Calculation of Estimated Critical Position. The inspector discussed the contents of these technical instructions with several Senior Reactor Operators (SROs) and then asked them to perform parts of TI-23. It was noted that a few of these SROs could not perform parts of TI-23 due to its complexity. Similar problems were noted with TI-8. Until these TIs are revised and additional training has been conducted, this is inspector followup item 390/84-82-04.
- c. The inspector made a visual inspection of the Unit 1 reactor pressure vessel head and upper internals. It was noted that there are many instances of weld splatter, porosity, and indentations on the clad material on the underside of the vessel head. A quality control inspector was notified, and a maintenance request was issued for mechanical maintenance and the manufacturer to evaluate the situation. The results of this evaluation and needed repairs constitute an inspector followup item 390/84-82-05.
- d. The inspector noted during a plant tour that there are five B train cable trays in the A train 6900 volt and 480 volt shutdown board rooms. A discussion with licensee personnel revealed that an analysis of the cables in these trays is being conducted through the licensee's safe shutdown logic review. The results of this analysis and any necessary changes constitute inspector followup item 390/84-82-06.

No violations or deviations were identified during this inspection.

11. Welding of Safety Related Piping - Unit 2 (55083C)

The following welds were inspected at various stages of completion:

- Weld number 2-067J-T637-35 (socket weld)
Class of weld - ASME Sec. III, ch. 3
Welder - 6UG
Detailed welding procedure - GT-88-0-3, Rev. 1
Observed fit up QC inspection

- Weld number 2-072A-D091-03C (butt weld)
Class of weld - ASME Sec. III, ch. 2
Welder - 6RRF
Detailed welding procedure - GT-88-9-1, Rev. 6
Observed fit up QC inspection

- Weld number 2-067J-T630-21 (butt weld)
Class of weld - ASME Sec. III, ch. 3
Welder - 6ZZU
Detailed welding procedure - GT-88-0-3, Rev. 1
Observed in-process welding

The inspectors checked these welding operations for conformance to visual (including gap and mismatch measurements), documentation, welder qualification, weld metal requisition, and NDE requirements. For the first two welds, the inspectors witnessed the measurement of the purge gas for oxygen content using oxygen meter no. 373717. The inspectors observed that a current calibration sticker was attached to this instrument. The inspectors observed the control of covered electrode and bare filler metal weld material at rod shack no. 2. A discussion was held with licensee personnel about the control and baking procedures used for handling low hydrogen covered electrodes. These procedures are outlined in site procedure Quality Control Instruction (QCI)-4.01, Rev. 4, Storage, Issue and Control of Welding Material. Within the areas inspected, no violations or deviations were identified.