



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA ST., N.W., SUITE 3100  
ATLANTA, GEORGIA 30303

Report Nos. 50-390/80-32 and 50-391/80-25

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

Facility Name: Watts Bar

Docket Nos. 50-390 and 50-391

License Nos. CPPR-91 and CPPR-92

Inspection at Watts Bar site near Spring City, Tennessee

Inspector:

*Nick Economos*  
N. Economos

*11-17-80*  
Date Signed

Approved by:

*A. R. Herdt*  
A. R. Herdt, Section Chief, RCES Branch

*11-20-80*  
Date Signed

#### SUMMARY

Inspection on October 21-24, 1980

#### Areas Inspected

This routine, announced inspection involved 26 inspector-hours on site in the areas of licensee action on previous inspection findings (Units 1 and 2); Safety-related pipe welding, work observation (Unit 1); and Valve inspection (Units 1 and 2).

#### Results

Of the three areas inspected no items of noncompliance or deviations were identified in one area; two items of noncompliance were identified in two areas (Infraction - Acceptance of undersize socket fillet welds on reinspection - Paragraph 5.c.; Infraction - Failure to achieve implementation of corrective action, detail weld procedures in work areas - paragraph 6).

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## DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*J. E. Wilkins, Project Manager
- \*R. W. Olsen, Construction Engineer
- \*J. Weinbaum, QC&R Unit Supervisor
- \*J. A. Thompson, Welding Engineering Unit Supervisor
- S. J. Bonney, Senior Welding Engineer (WEU)
- \*S. J. Wolfe, Welding Engineer
- L. A. Harris, Piping System Engineer
- D. Miller, Welding Engineer Associate
- \*L. J. Johnson, Mechanical Engineering Unit Supervisor
- A. W. Rogers, QA Supervisor
- R. E. Reid, Level II Examiner (RT)

Other licensee employees contacted included construction craftsmen, technicians, and office personnel.

#### NRC Resident Inspector

- \*J. McDonald

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on October 24, 1980 with those persons indicated in Paragraph 1 above.

### 3. Licensee Action on Previous Inspection Findings

- a. (Closed) Infraction 391/80-13-01, Failure to Provide Documented Instructions for Control and Subsequent Inspection of Temporary Attachments Welded Within 1-Inch of a Welded Joint. TVA-WBNP letter of response dated September 11, 1980 has been reviewed and determined to be acceptable by Region II. The inspector held discussions with the cognizant unit supervisor and examined the corrective actions as stated in the letter of response. The inspector concluded that TVA-WBNP had determined the full extent of the subject noncompliance performed the necessary survey and follow-up actions to correct the present conditions and developed the necessary corrective actions to preclude recurrence of similar circumstances. The corrective actions identified in the letter of response have been implemented.

- b. (Closed) Infraction 391/80-13-02, Failure to Mark Safety-Related Pipe in Accordance with Process Instruction. TVA-WBNP letter of response dated September 11, 1980 has been reviewed and determined to be acceptable by Region II. The inspector held discussions with cognizant unit supervisor and examined the corrective actions as stated in the letter of response. The inspector concluded that TVA-WBNP had determined the full extent of the subject noncompliance, performed the necessary survey and follow-up actions to correct the present conditions and developed the necessary corrective actions to preclude recurrence of similar circumstances. The corrective actions identified in the letter of response have been implemented.
- c. (Closed) Deficiency 391/80-13-03, Failure to Follow Minimum Acceptance Criteria for the Evaluation of Radiographic Film. TVA-WBNP letter of response dated September 11, 1980 has been reviewed and determined to be acceptable by Region II. The inspector held discussions with cognizant unit supervisor and examined the corrective actions as stated in the letter of response. The inspector concluded that TVA-WBNP had determined the full extent of the subject noncompliance, performed the necessary survey and follow-up actions to correct the present conditions and developed the necessary corrective actions to preclude recurrences of similar circumstances. The corrective actions identified in the letter of response have been implemented.
- d. (Open) Infraction 390/80-14-01, Failure to Follow Qualified Parameters of Welding Procedures. TVA-WBNP letter of response dated July 10, 1980 has been reviewed and determined to be acceptable by Region II. The inspector held discussions with cognizant unit supervisor and project manager and examined the corrective actions as stated in the letter of response. The inspector concluded that TVA-WBNP had determined the full extent of the subject noncompliance. The inspector concluded by observation and interviews that TVA-WBNP had not fully achieved the corrective actions, stated in the letter of response, and deemed as necessary to prevent recurrence of problems in this area. Hence this matter remains open until the licensee has implemented the appropriate corrective actions and full compliance has been achieved. Further discussion on this matter appears under paragraph 6 of this report.
- e. (Closed) Deficiency 390/80-14-02, Failure of Dye Penetrant Inspectors to Conduct Proper Post Examination Cleaning. TVA-WBNP letter of response dated July 11, 1980 has been reviewed and determined to be acceptable by Region II. The inspector held discussions with cognizant unit supervisor and examined the corrective actions as stated in the letter of response. The inspector concluded that TVA-WBNP had determined the full extent of the subject noncompliance, performed the necessary survey and follow-up actions to correct the present conditions and developed the necessary corrective actions to preclude recurrence of similar circumstances. The corrective actions identified in the letter of response have been implemented.

4. Unresolved Items

Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve noncompliance or deviations. New unresolved items identified during this inspection are discussed in paragraph 5.b.

5. Independent Inspection Effort

a. Construction Activities (Units 1 and 2)

The inspector conducted a general inspection of the auxiliary and reactor buildings to observe construction progress and activities including welding, pipe/equipment handling, nondestructive examinations, weld material handling and control, housekeeping and storage.

b. Valve Installation and Inspection

During the walk through inspection of Unit 1 reactor building the inspector noted that a 3" Velan Globe valve was being cut out of the chemical volume control (CVC) line in loop 3. The work was being performed as per procedure QCP-4.10 and documented on Pipe Cutting Operation Sheet #1-62-F29-81. The valve was identified with S/N 000593.

Discussions with the cognizant engineers disclosed that the decision to remove the valve was based on discovery of a cracked seat. Further discussions disclosed that out of a group of ten (10) similar valves, five (5) exhibited badly scored stems and two (2) had cracked seats. The valves under discussion are listed below.

<u>S/N</u>	<u>Condition</u>
Unit 1	
*593	Cracked seat
602	Satisfactory
1681	Scored stem
70	Scored stem
007	Cracked seat
Unit 2	
32	Satisfactory, removed to use as replacement
1633	Scored stem
56	Scored stem
1639	Scored stem
1687	Satisfactory, removed use as replacement

\*Nonconformed and scheduled for return to vendor.

The valves were purchased through Westinghouse under contract number 71C62-54114. Code data reports (NPV-1) ASME III (71S73) and receipt inspection reports were reviewed and appeared to be in order. Valve S/N 1633 was disassembled and the inspector observed the scoring (groove) on the valve stem. The groove appeared to be .003" to .005" deep and followed a uniform spiral pattern along the length of the stem. The inspector discussed this problem with cognizant field engineers and site management and expressed concern over the fact that there was no mechanism/requirement to check valves prior to field installation. A check prior to installation would help to minimize the need to cut-out sound welds in order to remove and replace defective valves, as in this case, where two (2) installed defective valves were replaced in Unit 1 with two (2) from Unit 2, involving a total of sixteen welds. The licensee representative stated and the inspector agreed that these valves are supposed to be checked by the vendor and TVA's vendor inspection group prior to shipment and that it would be an overwhelming job to inspect every valve prior to installation. However, the licensee representative agreed to look into the matter and discuss it again during subsequent inspections.

On October 29, 1980 during a telephone conversation with the licensee QC&R supervisor the inspector stated that the licensee should look into the generic aspects of this matter and its impact on WBNP and other TVA sites. This matter was identified as unresolved item 390/80-32-01, 391/80-25-01, Defective 3" 1500 Velan Globe Valves.

c. Socket Fillet Weld Reinspection (Units 1 and 2)

An inspection of randomly selected completed socket fillet welds that had been reinspected as part of the corrective action required to close infraction 390/80-05-02, 391/80-04-02, "Socket Weld Problems not Properly Addressed", was performed. The welds inspected were 3/4" schedule 160 socket fillet welds in the CVC system. The pipe subassemblies appeared on sketch #406-1, sheets 22 R/2 and 38 R/2. All welds selected for inspection had been checked off as acceptable by the designated WEU inspector and the sheets were initialed and dated June 1, 1980.

However upon inspection, on October 22, 1980, the inspector and the accompanying WEU inspector agreed that a large number of the reinspected/accepted welds were still undersize. This finding was brought to the attention of WEU supervisor and site management. The inspector stated that this finding raises serious doubts as to the adequacy of the reinspection program and stressed that additional steps would be required to verify the acceptability of reinspected socket fillet welds.

The licensee was informed that this finding was considered a noncompliance against Criterion V of Appendix B to 10 CFR 50 and that it would be categorized as an infraction identified by No. 390/80-32-02, 391/80-25-02, "Acceptance of Undersize Socket Fillet Welds on Reinspection."

6. Safety-Related Piping (Welding) - Observation of Work and Work Activities (Unit 1)

The inspector observed field welding activities of safety-related piping outside of the reactor coolant pressure boundary system at various stages of weld completion in order to ascertain whether applicable code and procedural requirements were being met and, whether corrective actions relative to infraction 390/80-14-01 had been implemented and fully achieved as stated in the licensee's response of July 10, 1980. The applicable code for this area is ASME Section III (71S73) as implemented by TVA General Construction Specification G-29M R/12.

Welds observed were as follows:

Weld No.	Size (inches)	Completion Stage
1-067J-T531-12	12" sch 40	root and final
1-067J-T531-13	12" sch 40	root and final
4, 5, 10 and 12 (socket fillets welds)	1½" x .065"	Partial
SK-600-105-253, Sheet 1 R/2		

The above listed welds were examined in process to determine whether work was conducted in accordance with traveler; welder identification and location; welding procedure; WPS assignment welding technique. Also material identity; weld geometry; fit-up; temporary attachments; gas purging; preheat; electrical characteristics; shielding cleaning; process control systems; qualification of welder and inspection personnel; and weld history records, as applicable, were reviewed.

Within these areas, on October 22, 1980 the inspector noted that the weld package for the aforementioned socket fillet welds did not contain a copy of the applicable detail weld procedure sheet (WPS), nor was it in the work area as stated in the licensee's response. Discussion with the designated fitter and welder disclosed that the WPS was kept at the foreman's station inside the turbine building and not "in the work area" (auxiliary building) as stated in the licensee's response. Further discussion with site management disclosed that this finding was not an isolated case, in that the program of including a copy of the applicable WPS in the welding package instituted as a result of this noncompliance, had not been fully implemented. The licensee was informed that this finding would be identified as noncompliance with Criterion XVI of Appendix B to 10 CFR 50, in the category of an infraction, item No. 390/80-32-03, 391/80-25-03 "Failure to achieve implementation of corrective action, "Detail Weld Procedure in Work Areas".