



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA ST., N.W., SUITE 3100  
ATLANTA, GEORGIA 30303  
MAR 24 1980

Report Nos. 50-390/80-05 and 50-391/80-04

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

Facility Name: Watts Bar Nuclear Plant

Docket Nos. 50-390 and 50-391

License Nos. CPPR-91 and CPPR-92

Inspection at Watts Bar site near Spring City, TN

Inspector: E. H. Girard  
E. H. Girard

3/21/80  
Date Signed

Approved by: A. R. Herdt  
A. R. Herdt, Section Chief, RC&ES Branch

3/21/80  
Date Signed

SUMMARY

Inspection on February 19-22, 1980

Areas Inspected

This routine, unannounced inspection involved 27 inspector-hours on site in the areas of open items (Units 1 & 2), potential 50.55(e) reports (Units 1 and 2) and welding material control (Unit 1).

Results

Of the three areas inspected, no items of noncompliance or deviations were identified in one area; two items of noncompliance were found in two areas (Infraction - Socket weld size problems not properly addressed - paragraph 5.a and Infraction - Uncontrolled welding material - paragraph 6). No deviations were found in the three areas inspected.

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## DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*J. E. Wilkins, Project Manager, WBNP (Watts Bar Nuclear Plant)
- \*H. C. Richardson, Construction Engineer - WBNP
- \*S. Johnson, Assistant Construction Engineer - WBNP
- \*R. L. Heatherly, QC&R Unit Supervisor - WBNP
- \*L. C. Northard, Welding Engineering Unit (WEU) Supervisor - WBNP
- J. M. Lamb, Mechanical Engineering Unit (MEU) Supervisor - WBNP
- D. E. Harvey, Engineering Aide - Power Production

Other licensee employees contacted included two construction craftsmen, three QC inspectors, and five Mechanical Engineering Unit personnel.

#### NRC Resident Inspector

- \*J. A. McDonald

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on February 22, 1980, with those persons indicated in paragraph 1 above. The infraction identified in paragraph 5 was discussed in detail.

### 3. Licensee Action on Previous Inspection Findings

(Open) Infraction (390/79-25-01; 391/79-21-01): Omitted liquid penetrant inspection and documentation of alignment bead. TVA's letter of supplemental response to this item dated December 7, 1979, stated that discussions with engineering and craft employees indicated that a problem with craft employees having performed unauthorized and undocumented alignment bead welds did not exist. The NRC inspector again questioned craft and engineering personnel and was informed there was sufficient evidence to believe that such a problem did exist, as examples had been found. An example provided to the inspector had been identified on TVA Nonconforming Condition Report (NCR) 1670R. The NRC inspector informed the licensee that based on this information the item would remain open for further examination and evaluation.

### 4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Licensee Identified Items [50.55(e)]

- a. (Open) Item 390/80-05-01 and 391/80-04-01: Faulty Fillet Welds. On February 20, 1980, TVA reported that 2-inch and under piping fillet socket welds in the Safety Injection (SI) and Upper Head Injection (UHI) Systems had been found to be undersize. The NRC inspector reviewed documentation and procedures, examined welds and questioned personnel relative to the subject area to determine whether it had been and was being properly addressed. The inspector found several examples of improper actions. These were as follows:
- (1) Condition Adverse to Quality Report (CAQR) M41 (dated 12/26/79) identified as nonconforming and provided for repair of a number of previously accepted safety-related piping fillet socket welds which did not meet specified size requirements. The corrective action taken with regard to this nonconforming condition appeared to be inadequate in that it failed to require any reinspection of other piping systems and sizes with similar welds previously accepted. The corrective action requirement entered on the CAQR only required that welding inspectors be cautioned to meet the procedural requirements. It did not indicate any checks to assure that instructions provided to the QC inspectors (or welders) or their knowledge of these instructions were satisfactory. The nonconforming condition was judged nonsignificant by the licensee and, therefore, was not reported to the NRC.
  - (2) In subsequent inspection, unrelated to corrective actions taken for CAQR-M41, the licensee identified many additional undersize socket welds. These welds were reported on Nonconforming Condition Reports (NCR) 2086R Rev. 1 dated 2/18/80, 2096R Rev. 1 dated 2/18/80 and 2101R Rev. 1 dated 2/15/80. Similarly to CAQR-M41, the corrective actions recorded on these reports failed to specify requirements for reinspection of similar welds or require any evaluation of the inspection instructions or the inspectors knowledge thereof. The NRC inspector also noted that the NCR's only identified those welds inspected and found nonconforming; the licensee had not recorded the welds inspected and found acceptable or identified the inspectors who performed those inspections. On account of these NCR's, the licensee determined that the undersize weld condition was significant and on February 20, 1980 reported it to Region II as a Potential 50.55(e) item.
  - (3) The NRC inspector questioned licensee inspection management and planning personnel as to whether an investigation had been or was being made to determine whether the undersize weld condition existed in areas other than those documented on the above referenced CAQR and NCR's. The NRC inspector was informed that examination of some Sch 80 piping found no undersize welds and that plans for further inspection were limited to Sch 160 piping socket welds (not limited to the SI and UHI systems identified in

the NCR's). Subsequently, with the licensee's assistance, the NRC inspector reinspected fillet weld size on Sch 40 and 80 safety-related piping socket welds and found undersize welds. Examples included Sch 40 piping weld 2-067B-T314-4 (Essential Raw Cooling water System); and Sch 80 piping welds 1-63A-T008-3, 6, 7 and 8 (SI System). In addition, on February 21, 1980, licensee QC inspection personnel informed the NRC inspector that undersize fillets had been identified for safety-related piping attachment welds 1-063A-D079-11C through 11J.

- (4) As already noted, neither the CAQR or NCR's referenced above required any investigation of the adequacy of the weld size instructions provided to QC inspectors or welders, or their knowledge thereof. During an inspection of safety-related socket welds the NRC inspector reviewed the instructions being used by QC inspectors and questioned inspectors on the requirements. The NRC inspector found that the approved instructions provided to the inspectors were inadequate for use in inspection of field welds in that socket weld size requirements were provided as formulas which required two calculations for each pipe wall thickness. One licensee inspector was found to be using a listing of size requirements he stated he had generated. Another, had no listing but attempted to recall requirements he had seen on such a listing from memory. The NRC inspector questioned both of these inspectors and found that they were not aware that socket-welding flanges required (per specification G29M) larger fillet welds than other socket weld pipe fittings.

The inspector discussed the above findings with the licensee and noted that the undersize weld condition had not been addressed in a properly organized, planned and documented evaluation and that certain apparently significant conditions adverse to quality had not been promptly identified and corrected as required. The licensee was informed that this was considered a noncompliance with respect to Criterion XVI of 10 CFR 50 Appendix B and that it would be identified as an infraction, item 390/80-05-02; 391/80-04-02, "Socket Weld Problems Not Properly Addressed".

Note: On February 21, 1980 TVA issued a NCR documenting the undersize socket welds as a breakdown in the QA program and notified Region II that a 100% reinspection was being conducted on all safety related socket welds.

- b. (Closed) Item 390/80-05-03: Undocumented Welds in Safety Injection (SI) and Residual Heat Removal (RHR) Systems. On February 8, 1980, TVA reported that during baseline inspection a number of extra (undocumented) welds were discovered near field welds. These extra welds were found in the RHR and SI Systems. The inspector reviewed this item with the licensee and examined a section of one of the welds which had been cut out and mounted. The weld did not penetrate the full thickness of the pipe and appeared to be a material repair or

buildup. It was speculated that the weld metal might have been added to correct an underwall condition. To assure that subsequent machining and grinding operations had not produced or reintroduced an underwall condition at such welds the NRC inspector requested an ultrasonic thickness check on examples of the weld areas. The following welds were checked:

- (1) RHRS - 138
- (2) SIF - D079-8
- (3) SIF - D077-1
- (4) SIS - 3
- (5) SIS - 1
- (6) SIS - 8

No underwall condition was identified.

On February 19, 1980, TVA notified Region II that this item was non-reportable.

#### 6. Independent Inspection

The inspector examined areas in the reactor and auxiliary building for the presence of uncontrolled welding material after completion of the day shift. Safety-related covered electrodes (identified 7018) and bare electrodes (no marking) were found on the floor of the reactor building. This violates requirements given in Procedure WBNP-QCP-4.10 R10, which requires that unused coated electrodes and cut lengths of bare wire be desposited in locked boxes in the control center. This is a noncompliance with the requirements of Criterion V of 10 CFR 50 Appendix B. The licensee was informed this would be an infraction, identified 390/80-05-04, "Uncontrolled Welding Material".

In the areas inspected one item of noncomplince was identified and is described above. No deviations were identified.