



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

Report No.: 50-390/79-09, 50-391/79-07

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

Facility Name: Watts Bar Nuclear Plant  
Units 1 and 2

Docket No. 50-390, 50-391

License No. CPPR-91, CPPR-92

Inspection at Watts Bar site near Spring City, Tennessee

Inspector: T. E. Conlon for 3/19/79  
E. H. Girard Date Signed

Approved by: T. E. Conlon 3/19/79  
T.E. Conlon, Section Chief, RC&ES Branch Date Signed

SUMMARY

Inspection on February 20-23, 1979

Areas Inspected

This routine, unannounced inspection involved 27 inspector-hours in the areas of licensee action on previous inspection findings (Units 1 and 2), girth welds on CVCS hold up tanks (Units 1 and 2), requirements for control of cold spring in piping (Units 1 and 2), pressurizer spray piping (Units 1 and 2), safety related piping (welding) - observation of work and work activities (Unit 1), and safety related piping - observation of work and work activities (Unit 1).

Results

Of the six areas inspected, no apparent items of noncompliance or deviations were identified in five areas; one apparent item of noncompliance was found in one area (Infraction - Weld reinforcement on CVCS tanks exceeds Code maximum - paragraph 5.a).

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## DETAILS

### 1. Persons Contacted

#### Licensee Employees

E. Merrick, Metallurgical Engineer  
\*T. B. Northern, Project Manager  
\*H. C. Richardson, Construction Engineer  
\*S. Johnson, Assistant Construction Engineer  
\*J. M. Lamb, Supervisor, Mechanical Engineer Unit  
\*R. L. Heatherly, Supervisor, DC&R Unit  
\*A. W. Rogers, QA Supervisor  
L. C. Northard, Supervisor, Welding Engineering Unit

#### Other Organizations

A. L. Hogarth, Westinghouse NSD Site Manager, Watts Bar Site

#### NRC Resident Inspector

B. J. Cochran

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on February 23, 1979, with those persons indicated in Paragraph 1 above. The inspector informed licensee management that if the reshoot film requested for previously identified unresolved item 390/78-05-04 (see paragraph 3) was not available by his next inspection the item would be changed to a noncompliance. In addition, licensee management was informed that the inspector had requested a response to concerns he had expressed regarding controls on cold spring in piping (see paragraph 5.b, unresolved item 390/79-09-02 and 391/79-07-02). It is understood that this response will be provided in writing, as discussed with Licensee engineer E. Merrick.

### 3. Licensee Action on Previous Inspection Findings

(Open) Unresolved Item (390/78-05-04): Poor radiographic film processing for refueling water storage tank welds. The licensee had agreed to reshoot weld 5V4 to provide satisfactory film for this location during inspection 390/78-05. The inspector asked to see this shot. The licensee stated that the location had been reshoot but that the film could not be located. The licensee was informed that this item would be changed to a noncompliance if the subject film was not available at the inspector's next visit.

(Closed) Infraction (390/78-31-01 and 391/78-26-01): Failure to follow procedures applicable to storage of stainless steel pipe. The licensee's requirements in this area (paragraph 3.1.10.1 of Process Specification 4.M.1.1 Rev.d) were found to have been revised. The inspector verified satisfactory compliance with the requirements.

(Open) Unresolved Item (390/78-31-03): Some welds on the ice condenser lower support platform do not comply with the drawing. The inspector will need to review a copy of Westinghouse Deviation Notice 5545 to determine the disposition of this item. The licensee is obtaining this document.

(Closed) Unresolved Item (390/79-02-02): Pressurizer spray line drawing indicated 680 degrees temperature but valves in lower end of line were found rated for only 650 degrees. The licensee stated that the temperature indicated on the drawing was the highest temperature in the line and would be reached only at the upper (pressurizer) end of the line. 650 degrees was determined to be a satisfactory rating for the valves. The inspector is satisfied with this explanation.

#### 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. A unresolved item identified during this inspection is discussed in paragraph 5.b.

#### 5. Independent Inspection

##### a. Girth Welds on CVCS Holdup Tanks (Units 1 and 2)

The inspector visually examined the CVCS holdup tank girth welds. The tanks were fabricated and stamped to comply with ASME Section III, Class 3 (74 Ed.). The inspector found that the reinforcement on the welds exceeds the maximum specified in ND-4426 of ASME Section III. The failure to comply with the Code requirement is considered a noncompliance with Criterion V of 10CFR50, Appendix B. This item will be a noncompliance of the infraction level and is identified as 390/79-09-01 and 391/79-07-01.

##### b. Requirements for Control of Cold Spring in Piping (Units 1 and 2)

The inspector reviewed the licensee's requirements pertaining to control of cold spring in piping in General Construction Specification G-43 (Support and Installation of Piping Systems in Category I Structures) and in Process Specification 4.M.1.2 (c) (Specification for Bending or Alignment of Pipe and Tubing). Certain of the requirements in these specifications appear unsatisfactory. The NRC inspector's concern with the requirements are described below:

- (1) Paragraph 1.3 of Specification G-43 defines cold springing in terms of a piping segment that is either too short or too long, making the application of force necessary to join adjacent segments. This appears incomplete in that it does not address other examples of cold springing such as the use of force to align segments of piping that are offset from one another or to move piping into a position where it will be permanently restrained by hangers or supports.
- (2) The second paragraph (new paragraph 5.3) of Addendum 1 to Process Specification 4.M.2.1 (c) states that "pipe which has a final strain less than .5 percent (as calculated in paragraph 3.2.3.C), may be aligned up to 5 degrees for purposes of fit up, by cold bending...". Two licensee personnel questioned regarding this item indicated that they interpreted it as permitting the forced movement (cold springing) of piping segments up to 5 degrees, whenever necessary for alignment, and without any subsequent removal of the elastic stresses produced. From a subsequent conversation with the licensee engineer responsible for the specification, it is the NRC inspector's understanding that there was no intention to permit elastic stresses to remain in the pipes with this requirement.
- (3) Paragraph 5.1 of Process Specification 4.M.2.1 (c) authorizes the selective deposition of weld bends for alignment of pipe or tubing. The elastic stresses produced in piping by this technique of alignment would appear to create a condition similar to cold springing. It does not appear that such stresses can be satisfactorily accounted for in the design. The licensee has been requested to respond in writing regarding the adequacy of his requirements for control of cold spring in piping, specifically addressing the three areas of concern described above. This will be an unresolved item, identified as number 390/79-09-02 and 391/79-07-02.

c. Pressurizer Spray Piping (Units 1 and 2)

The inspector examined installed and partially installed pressurizer spray piping on Units 1 and 2, respectively, for evidence of unacceptable cold spring. This is ASME Section III, Class 1 piping. There was no evidence of cold spring.

Within the inspection described in paragraph 5 above, one item of noncompliance was identified. It is described in subparagraph 5.a. No deviations were found.

6. Safety Related Piping (Welding) - Observation of Work and Work Activities (Units 1 and 2)

The inspector observed welding of safety-related piping outside the reactor coolant pressure boundary at various stages of weld completion. The applicable code for safety-related pipe welding is ASME Section III, Class 2 and 3 as implemented by TVA General Construction Specification G-29M.

- a. The inspector examined weld joint fitup, prior to welding, to determine whether weld identification/location, joint preparation and alignment, evidence of QC verification meet applicable procedures. The following weld joints were examined.

<u>Joint Number</u>	<u>Unit</u>	<u>System</u>
T008-05	2	Reactor Coolant
2-072A-T037-04	2	Containment Spray

- b. The inspector examined weld joints where the root pass (only) has been completed to determine; weld/welder identification, qualified welder/weld procedure, physical appearance of weld and evidence of QC verification. The following weld joints were examined.

<u>Joint Number</u>	<u>Unit</u>	<u>System</u>
1-068A-T008-05	1	Reactor Coolant
2-072A-T037-04	2	Containment Spray

- c. The inspector examined weld joints of pipe to pipe/fitting where welding was beyond the root pass to determine; weld/welder identification, qualified welder/weld procedure, use of specified weld material, proper interpass temperature, pre-heat and physical appearance of weld (e.g. starts, stops, undercut and surface imperfections).

<u>Joint Number</u>	<u>Unit</u>	<u>System</u>
1-070A-T055-17A	1	Component Cooling
2-072A-T037-04	2	Containment Spray

- d. The inspector examined the following weld where non-destructive testing (NDE) was in progress to determine; surface suitability, specified NDE being performed and with qualified personnel.

<u>Joint Number</u>	<u>Unit</u>	<u>System</u>
2-032E-T001-7	2	Control Air

- e. The inspector observed activities at weld material issue stations to determine adequacy of; weld material storage/segregation, oven temperatures, issue records and return of unused weld material. Also observed work areas for uncontrolled weld material.

Within the areas examined, there were no items of noncompliance or deviations identified.

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

The inspector observed the use of a come-along across the fitup of Reactor Heat Removal System piping at weld 1-074A-D047-06B. This is safety related ASME Section III, Class 2 piping. The piping was examined for possible cold spring in violation of TVA Specification G-43. The come-along was removed. The weld gap was examined for opening as an indication of cold spring. No cold spring was detected. Within the area inspected, no noncompliances or deviations were identified.