



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303
AUG 20 1980

Report Nos. 50-390/80-19 and 50-391/80-13

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

Facility Name: Watts Bar Nuclear Facility

Docket Nos. 50-390 and 50-391

License Nos. CPPR-91 and CPPR-92

Inspection at Watts Bar site near Spring City, Tennessee

Inspector: J. L. Coley

8-19-80
Date Signed

Approved by: A. R. Herdt
A. R. Herdt, Section Chief, RCES Branch

8-19-80
Date Signed

SUMMARY

Inspection on June 30, thru July 3, 1980

Areas Inspected

This routine, unannounced inspection involved 29 inspector-hours on site in the areas of licensee action on previous inspection findings (Units 1 and 2), reactor coolant boundary pipe welding (Unit 2), safety-related pipe welding (Units 1 and 2), weld records for reactor coolant boundary pipe welding (Units 1 and 2) and weld records for safety-related pipe welding (Units 1 and 2).

Results

Of the five areas inspected, no items of noncompliance or deviations were identified in two areas; four items of noncompliance were found in three areas (Infraction - Failure to Have Documented Instructions For The Control and Subsequent Inspection of Temporary Attachments Welded Within 1-inch of a Welded Joint Paragraph 5.a). (Infraction - Failure to Mark Safety-related Pipe in Accordance with Process Instruction Paragraph 6.a). (Deficiency - Failure to Follow Minimum Acceptance criteria For The Evaluation of Radiographic Film Paragraph 6.c) and (Deficiency - Failure of NDE Inspector to be Knowledgeable of or to Have Liquid Penetrant Test Acceptance Criterion on Job Paragraph 6.b).

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DETAILS

1. Persons Contacted

Licensee Employees

- *J. E. Wilkins, Project Manager - WBNP (Watts Bar Nuclear Plant)
- *S. Johnson, Asst. Construction Engineer - WBNP
- *L. G. Hebert, QA Evaluator OEDC QA Staff
- *R. L. Heatherly, Supv. QC&R Unit - WBNP
- *S. L. Boney, Welding Engineering Unit - WBNP
- *H. L. Richardson, Construction Engineer - WBNP
- *R. M. Jessee, ENDES - NEB
- *M. Turnbow, QA Engineer Construction - WBNP
- *A. W. Rodgers, Supv. QA Unit - WBNP
- *L. C. Northard, Asst. Construction Engineer QA
- *T. B. Buly, Construction Supv. HEU
- *S. K. Walker, QC&R - WBNP
- *R. Harrison, Mechanical Engineering Unit "A" WBNP

Other Licensee employees contacted included 14 construction craftsmen, two technicians, two security force members, and one office personnel.

NRC Resident Inspector

*J. McDonald

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on July 3, 1980 with those persons indicated in Paragraph 1 above. The inspector identified the areas inspected and discussed the four items of noncompliance. No dissenting comments were received from the licensee.

3. Licensee Action on Previous Inspection Findings

(Closed) Infraction 50-390/79-41-02, Failure to Follow Welding Procedure Purge Requirements. Tennessee Valley Authority's (TVA) letter of response dated January 30, 1980 has been reviewed and determined to be acceptable by Region II. The inspector reviewed radiographs of the weld joint in question and other records of objective quality evidence. The inspector is satisfied with the disposition provided and considers this item closed.

(Closed) Infraction 50-390/80-05-04, Uncontrolled Welding Material. TVA letter dated June 18, 1980 has been reviewed and determined to be acceptable. The inspector also conducted surveillance inspection of Unit 1 & 2 Reactor Building the Auxiliary Building and the Turbine Building. No uncontrolled welding material was noted. This item is considered closed.

(Closed) Unresolved item (50-390/79-37-01; 50-391/79-31-01), Pipe located within intended tolerances. The inspector reviewed the licensee's procedure WBNP-QCP-4.28 entitled "Piping Location Verification", and considers this item closed.

(Closed) Unresolved item (50-390/80-10-05; 50-391/80-07-03), Unacceptable Identification and Density of RT Film. The inspector reviewed the licensee's corrective action and considers this item closed.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Reactor Coolant Pressure Boundary Piping (Welding)

a. Observation of Work and Work Activities (Unit 2)

Reactor Coolant Pressure Boundary Piping and safety related piping is being installed in accordance with ASME Boiler and Pressure Vessel Code, Section III, 1971 edition with addenda through the summer of 1973 as implemented by TVA General Construction Specification G 29M, R12. The inspector observed field welding of two reactor coolant system pipe welds, joint Nos. 2-068A-D146-05 and 2-068A-D148-05. Both joints were 3" diameter with a .438" nominal wall thickness.

The inspector verified the parameters of the welding procedure, observed welders certification and reviewed the weld history records of the fit-up inspections. The inspector noted that temporary attachments were welded on the pipe for weld joint 2-068A-D148-05 and attachments had been removed from the pipe for weld joint 2-068A-D146-05. No annotation of temporary attachments was observed on the weld joint history records nor were the areas marked on the pipe. The licensee indicated code pipe welds were Liquid Penetrant (PT) examined for 1 inch on either side of the weld. Temporary attachments welded outside the one inch area would have a field weld operation sheet for installation and removal. The licensee stated, however that there was no Watts Bar procedure which required the NDE inspector to perform liquid penetrant inspection for one inch on each side of the weld. In fact, Watts Bar liquid penetrant process instruction 3.m.1.1.(c) paragraph 6.1.3 requires PT examination for only 1/2 inch on each side of the weld and this 1/2 inch of additional coverage is for class 1 welds only. TVA's G29M Process Instruction 1.m.1.2(b) paragraph 14.4 requires the area where temporary attachments have been removed to be examined. The above is in noncompliance with 10 CFR 50 Appendix B Criterion V, as implemented by paragraph 17.1A.5 of the FSAR, which requires activities affecting quality to be prescribed by documented instructions, procedure or drawings. This is an infraction and is assigned item number 50-391/80-13-01: "Failure to Provided Documented Instructions for the Control and Subsequent Inspection of Temporary Attachments welded within 1 inch of a Welded joint."

b. Review of Radiographs (Unit 1 and 2)

The inspector reviewed radiographs of selected class 1 welds for conformance to code and procedure requirements. Radiographs and Weld History Sheets for the following welds were reviewed:

<u>Weld No.</u>	<u>Unit</u>	<u>Size</u>	<u>Class</u>
2-068A-D144-06	2	3"x.438"	1
2-068A-D144-08	2	3" x .438"	1
2-068A-D144-07	2	3" x .438"	1
2-087B-D020-10	2	8" x .812"	1
2-087B-D020-09	2	8" x .812"	1
1-062B-D033-10	1	3" x .438"	1

In the areas inspected, one item of noncompliance was identified and is described in paragraph 5.a above. No deviations were identified.

6. Safety-Related Piping (Welding)

a. Observation of Work and Work Activities (Unit 2)

The inspector observed field welding of safety-related piping outside reactor coolant pressure boundary at various stages of weld completion. The applicable code for safety-related pipe welding is delineated in paragraph 5.a above. The following welds were observed:

<u>Weld No.</u>	<u>Size(Diameter)</u>	<u>Class</u>	<u>Stage of Completion</u>
2-070B-T141-19	1"	3	Fit-up
2-070B-T141-20	1"	3	Fit-up
2-070B-T141-21	1"	3	Fit-up
2-070B-T141-21A	1"	3	Fit-up
2-070B-T141-21B	1"	3	Fit-up
2-070B-T141-19	1"	3	Root Layer
2-070B-T141-20	1"	3	Root Layer
2-070B-T145-31	1½"	3	Root Layer
2-070B-T145-32	1½"	3	Root Layer
2-070B-T145-33	1½"	3	Intermediate Weld
2-070B-T145-34	1½"	3	Intermediate Weld
2-070B-T145-35	1½"	3	Root Layer
2-070B-T145-36	1½"	3	Root Layer
2-070B-T145-37	1½"	3	Root Layer
2-070B-T145-38	1½"	3	Intermediate Weld
2-062B-D138-03B	3"	2	Completed Weld
2-062B-D138-03A	3"	2	Completed Weld

For the above welds, the inspector reviewed applicable weld data sheets, weld rod issue slips, welder qualification, fit-up & alignment, weld surface preparation and verified welding was being performed within the parameters of the welding procedure. The inspector noted on completed welds 2-062B-D138-03A and 2-062B-D138-03B that the welder had center punched the pipe adjacent to the welds, so that the weld

could be located for x-ray and preservice inspection. Several of the center punch holes, however were punched with a sharp pointed punch in lieu of a blunt-nosed or interrupted dot die stamps having a 1/32" minimum radii and one indentation measured .057" in .437" nominal wallpipe. The inspector also noted during a review of radiographs of safety related pipe welds some of the punch holes appeared so dark on the radiographic film that they gave the impression of a drilled holes. The above is in noncompliance with 10 CFR 50, Appendix B, Criterion V. This is an infraction and was assigned item numbers 50-391/80-13-02: "Failure to Mark Safety Related Pipe In Accordance With Process Instructions".

b. Observation Of Liquid Penetrant Inspection Of Socket Welds (Unit 1)

The inspector observed liquid penetrant inspection of 14 socket welds on safety related-piping outside the reactor coolant pressure boundary. The following welds were observed:

<u>Weld No.</u>	<u>Size(Inch)</u>	<u>Class</u>
1-003B-T203-FW-18	1/2" Schedule 80	2
1-003B-T165-7A	1/2" Schedule 80	2
1-003B-T165-8A	1/2" Schedule 80	2
1-003B-T204-16	1/2" Schedule 80	2
1-003B-T166-7	1/2" Schedule 80	2
1-003B-T166-8	1/2" Schedule 80	2
1-003B-T201-16	1/2" Schedule 80	2
1-003B-T201-17	1/2" Schedule 80	2
1-003B-T201-FW 18	1/2" Schedule 80	2
1-003B-T162-7A	1/2" Schedule 80	2
1-003B-T162-8A	1/2" Schedule 80	2
1-003B-T202-18	1/2" Schedule 80	2
1-003B-T169-15B	1/2" Schedule 80	2
1-003B-T169-14	1/2" Schedule 80	2

The inspector questioned the NDE inspector concerning the acceptance criteria for rounded indications, specifically what would be the maximum size rounded indication that he could accept and how many rounded indications of a particular size could he have in the weld he was inspecting. The NDE inspector did not know this acceptance criteria nor did he have a copy of the liquid penetrant process instruction on the job. The nearest procedure was outside the Unit 1 Containment building. The inspector questioned the Welding Engineering Unit Supervisor concerning this item and this individual stated that Watts Bar did not have requirements for the NDE inspector to have a procedure on the job site. The above is a noncompliance with 10 CFR 50, Appendix B, Criterion VI which requires measures to be established to assure that documents, including changes are distributed to and used at

the location where the prescribed activity is performed. This is a deficiency and is assigned item number 50-390/80-19-01: "Failure To Establish Measures To Insure That Liquid Penetrant Test Acceptance Criteria are On The Job Site".

c. Review of Safety-Related Pipe Weld Radiographs (Unit 1 & 2)

The applicable code for radiography is delineated in paragraph 5.a. The inspector reviewed radiographs for selected class 2 welds for conformance to Code and procedure requirements. Radiographs & Weld History Sheets for the following welds were reviewed:

<u>Weld No.</u>	<u>Size(Inch)</u>	<u>Class</u>	<u>Comments</u>
2-074A-D027-06A	8" x .322"	2	Film Station 0-1 indication exceeds acceptable limit. Film Station 2-3 indications exceed acceptable limits. Film Station 1-2 center punch hole should be check for remaining minimum wall.
2-074A-D030-05A	2" x .154"	2	
2-062A-D015-01	3" x .216"	2	
1-062B-D033-03A	3" x .438"	2	
1-062B-D033-03B	3" x .438"	2	
1-072A-D252-08	3" x .216"	2	
1-062B-D035-08	2" x .344"	2	
1-062B-D033-04A	3" x .438"	2	
2-074B-D032-07	8" x .906"	2	
2-062A-D015-05A	3" x .216"	2	

The inspectors' review of radiograph 2-074A-D027-06A which had a .322" pipe wall thickness revealed a 5/32" indication between film station 0-1 and a 7/32" indication between film station 2-3. The radiographic film reviewer had classified the indications as porosity and had accepted both film. Watts Bar Radiographic Process Instruction 3.m.3.1(b) paragraph 13.1.4(b) states: "The maximum pore dimension shall be 20 percent of T or 1/8 inch, whichever is less, except that an isolated pore separated from an adjacent pore by a minimum of 1 inch may be 30 percent of T or 1/4 inch, whichever is less".

Neither of these film meet this minimum acceptance criteria. The above is in noncompliance with 10 CFR 50 Appendix B Criterion V. This is a deficiency and was identified as item 50-391/80-13-03: "Failure to Follow Minimum Acceptance Criteria For the Evaluation of Radiographic Film".

In the areas inspected, three items of noncompliance were identified and are described in paragraphs 6.a, 6.b and 6.c above. No deviations were identified.