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

Report Nos.: 50-390/78-21 and 50-391/78-18

Docket Nos.: 50-390 and 50-391

License Nos.: CPPR-91 and CPPR-92

Categories: A3 and A2

Licensee: Tennessee Valley Authority
830 Power Building
Chattanooga, Tennessee 37401

Facility Name: Watts Bar Nuclear Plant, Units 1 and 2

Inspection at: Watts Bar Dam, Tennessee

Inspection conducted: August 9-11, 1978

Inspector: B. R. Crowley

Reviewed by: T E Conlon 9/12/78
T. E. Conlon, Chief Date
Engineering Support Section No. 2
Reactor Construction and Engineering
Support Branch

Inspection Summary

Inspection on August 9-11, 1978 (Report Nos. 50-390/78-21 and 50-391/78-18)
Areas Inspected: Steam Generator Tubing Eddy Current testing (Units 1 and 2); Reactor Coolant Pressure Boundary Piping (Unit 1); Safety-related Steel Structures (Unit 2). The inspection involved 25 inspector-hours on site by one NRC inspector. There were no part 21 or 50.55(e) items included in this inspection.
Results: Of the three areas inspected, no apparent items of noncompliance or deviations were identified in two areas, one apparent item of noncompliance (Infraction - failure to follow procedures for removal of temporary attachments) was identified in one area.

DETAILS I

Prepared by: B. R. Crowley 9/12/78
B. R. Crowley, Metallurgical Engineer Date
Engineering Support Section No. 2
Reactor Construction and Engineering
Support Branch

Dates of Inspection: August 9-11, 1978

Reviewed by: T E Conlon 9/12/78
T. E. Conlon, Chief Date
Engineering Support Section No. 2
Reactor Construction and Engineering
Support Branch

1. Persons Contacted

a. Tennessee Valley Authority (TVA)

*T. B. Northern, Jr., Project Manager
*H. C. Richardson, Construction Engineer
*J. M. Lamb, Supervisor, Mechanical Engineering
*R. L. Heatherly, Supervisor, QC and Records
J. A. Nicholls, Supervisor, Civil Engineering
*A. W. Rogers, Site QA Supervisor
*W. K. Anders, QA Engineer, OEDC
L. J. Johnson, Mechanical Engineer
J. A. Kerr, Mechanical Engineer
J. D. White, Mechanical Engineer
E. Crane, Mechanical Engineer, Plant Maintenance

b. Contractor Organizations

(1) Lambert-MacGill-Thomas, Inc. (LMT)

D. B. MacGill, Level II
R. D. Burlington, Level II

(2) Pittsburgh DesMoines Steel Company (PDM)

R. Chandler, Site QA Manager

In addition to the above personnel, the inspector interviewed other craft and inspection personnel.

*Denotes those present at the exit interview.

2. Licensee Action on Previous Inspection Findings

(Closed) Noncompliance (78-05-01): Failure to Document Weld Fitup: QCP 2.4, revision 3, which covers inspection and documentation of structural weld fitup, has been issued and implemented. This item is closed.

(Closed) Unresolved Item (78-02-02): Revision of RC Loop Welding Procedure to Limit Thickness of GTA Process: Process Specification 1.M.1.2(a) has been revised to define the thickness of metal to be deposited with the GTA process. This item is closed.

3. Unresolved Items

No unresolved items were identified during this inspection.

4. Independent Inspection Effort

The following areas of interest were examined by the inspector:

a. Walk-Through Inspection

A general walk-through inspection of the auxiliary building and reactor buildings 1 and 2 was made. General cleanliness and overall welding and inspection activities were observed.

b. Reactor Coolant Pressure Boundary Pipe Welding (Unit 1)

Reactor coolant pressure boundary piping is being welded in accordance with the ASME Boiler and Pressure Vessel Code, Section III, Subsection NB, 1971 Edition with addenda through the Summer of 1973.

The inspector observed in-process welding on welds 1-074B-D053-04, 1-062B-D033-11, and 1-074B-D053-02. Weld appearance, use of correct welding material, and use of the correct welding procedure were examined.

c. Safety-Related Pipe Welding (Unit 1)

Safety-related piping is being welded in accordance with the ASME Boiler and Pressure Vessel Code, Section III, Subsections NC and ND, 1971 Edition with addenda through the Summer of 1973.

The inspector observed in-process welding on weld 1-070B-D170-03. Weld appearance, use of the correct welding material and use of the correct welding procedure were examined.

d. Safety-Related Tanks (Unit 2)

The Refueling Water Storage Tank is being welded in accordance with the ASME Boiler and Pressure Vessel Code, Section III, Subsection NC, 1974 Edition with addenda through the Winter of 1975.

The inspector observed in-process welding on the 3rd ring vertical welds 3V1, 2, 3, 4 and 5. Weld appearance, use of the correct welding material, and use of the correct welding procedure were examined.

In the areas inspected, no items of noncompliance or deviations were identified.

5. Preservice Inspection - Review of Procedures (Units 1 and 2)

The inspector reviewed the licensee's procedures for preservice eddy current inspection of steam generator tubing to determine whether the procedures were consistent with regulatory requirements and licensee commitments. The inspection is being performed in accordance with the ASME Boiler and Pressure Vessel Code, Section XI, Appendix IV, 1974 Edition including the summer of 1976 addenda. The following procedures were reviewed:

WB-ET-1, Rev. 0
"Eddy Current Equipment Functional Check For Inservice Inspection of Steam Generator Tubing"

WB-ET-2, Rev. 0
"Eddy Current Examination of Steam Generator Tubing"

WB-ET-3, Rev. 0
"Calibration of Eddy Current System For the Inspection of Steam Generator Tubing"

The procedures were reviewed in the areas of:

a. Procedure approval by licensee personnel and a Level III examiner

b. Qualification of NDE personnel

c. Procedure scope, extent of examination, and licensee commitments.

d. Procedure technical content relative to:

(1) Specification of two channel equipment

(2) Establishment of criteria for maximum sensitivity

(3) Describing method of examination

(4) Describing calibration sequence and calibration simulator

(5) Specification of acceptance criteria

e. Recordkeeping requirements

In the areas inspected, no items of noncompliance or deviations were identified.

6. Preservice Inspection - Observation of Work and Work Activities (Unit 1)

The inspector observed in-process eddy current testing of steam generator tubes to determine whether preservice inspection work activities were being performed in accordance with regulatory requirements. See paragraph 5 above for the applicable code and procedures.

a. The inspector observed in-process testing of tubes C1 thru C15 in row 1 of generator no. 1, hot leg side. During testing, the following areas were examined:

(1) Procedure compliance in general

(2) Familiarity of examination personnel with equipment

(3) Controls for examination alterations and examination records

(4) Retention of identification for future ISI examinations

(5) The use of a 2 channel system

(6) Use of maximum sensitivity

(7) Calibration using the specified calibration block at the specified frequencies

(8) Extent of coverage of steam generator tubes

(9) Use of applicable acceptance criteria

b. Personnel qualification records for one level I, one level II and one level III examiner were reviewed. Records reviewed were "Certification Statement" and "Vision Test Certification" for each examiner plus an "ASNT Certificate" for the level III examiner.

In the areas inspected, no items of noncompliance or deviations were identified.

7. Safety-Related Structures (Structural Steel and Supports) - Observation of Work and Work Activities (Unit 2)

The inspector observed work in progress and completed work described below relative to the refueling water storage tank to determine whether work activities were being performed in accordance with applicable requirements. The tank is being fabricated in accordance with the requirements of the ASME Boiler and Pressure Vessel Code, Section III, Subsection NC, 1974 Edition with addenda thru the summer of 1975 as implemented by PDM ASME Section III QA Manual. The inspector observed the following activities:

a. Shell plate Pc. Mks. 2A-6, 2A-7, 2A-8, 2A-9, 2A-10, 2B-5, 2B-6, 2B-8, 2B-9, and 2B-10 were observed in storage at the tank site.

b. Anchor Ring Pc. Mks. 10A-9 thru 10-A-16 were observed during in-process fitup to the tank.

c. Completed 1st ring vertical welds were observed and fabrication check list (FCL) for these welds was reviewed.

d. Qualification records for the one QC person on site was reviewed.

e. In-process welding of 3rd ring vertical welds was observed and in-process FCL reviewed.

f. The partially completed tank roof was observed. During observation of the roof assembly, the inspector noted numerous areas where temporary attachments had been removed by knocking off with a hammer. Paragraph 13.4 of PDM welding specification WS40 specifies in part, "All temporary welded attachments ... shall be removed by mechanically cutting ... a failure line through the center of the weld sufficiently deep to permit breaking off the attachment without damage to the base material .... Under no conditions are temporary attachments to be removed by hammer blows only." This failure to follow procedures for the removal of temporary attachments is considered to be noncompliance with Criterion V of Appendix B to 10 CFR 50 as implemented by the FSAR, paragraph 17.1.A.5 and is identified as Item No. 391/78-18-01.

The licensee's contractor took immediate action to correct the above noncompliance. A corrective action request was issued; all contractor site personnel were re-instructed on the procedure requirements for removal of temporary attachments; and all attachment removal areas in question were inspected and no actual base material damage had occurred.

Based on the above corrective action this item will not require a response.

In the areas inspected, no items of noncompliance except as noted in paragraph f., or deviations were identified.

8. Safety-Related Structures (Structural Steel) and Supports - Review of Quality Records (Unit 2)

The inspector reviewed the quality records described below relative to the refueling water storage tank and the primary water makeup tank to determine whether these records reflected work consistent with applicable requirements. See paragraph 7. above for the applicable code and procedures.

a. Primary Water Makeup Tank

(1) The inspector reviewed the following material certification and receiving inspection records

for Pc. Mk. Nos. 1A-2, 1B-3, 1B-4, 1C-3, 1C-4, 1D-5, 1D-6, 1D-7, 1D-8, 1E-5, 1E-6, 1E-7, and 1E-8:

Field Receiving Reports
Material Test Reports
Examination Checklists
Fabrication Checklists (Shop)

(2) The inspector reviewed the fabrication checklists for the 1st ring vertical welds, the 2nd ring vertical welds, and the roof plate welds. In addition TVA "Weekly Surveillance Reports", Attachment "B" to QCP 4.11, nos. 26, 27, and 28 were reviewed. These records were reviewed for completeness, legibility, retrievability, and to determine if the tank was being fabricated in accordance with applicable specifications.

b. Refueling Water Storage Tank

(1) The inspector reviewed the following material certification and receiving inspection records for Pc. Mk. Nos. 2A-6, 2A-7, 2A-8, 2A-9, 2A-10, 2B-5, 2B-6, 2B-8, 2B-9 and 2B-10:

Field Receiving Reports
Material Test Reports
Examination Checklists
Fabrication Checklists (Shop)

(2) The inspector reviewed the completed fabrication checklist for the 1st ring vertical welds and the in-process fabrication checklists for the 3rd ring vertical welds and the anchor ring. In addition TVA "Weekly Surveillance Reports", attachment "B" to QCP 4.11, nos. 27 and 28 were reviewed. These records were reviewed for completeness, legibility, retrievability, and to determine if the tank was being fabricated in accordance with applicable specifications.

c. Qualification records for the one QC individual on the job were reviewed.

In the areas inspected, no items of noncompliance or deviations were identified.

9. Reactor Coolant Pressure Bounday Piping - Observation of Work and Work Activities (Unit 1)

The inspector observed the piping activities described below relative to reactor coolant pressure boundary piping to determine whether work was being accomplished in accordance with NRC requirements and SAR commitments. The fabrication code is the ASME Boiler and Pressure Vessel Code, Section III, Subsection NB, 1971 Edition with addenda through the Summer of 1973.

The inspector examined the in-process activities, partially completed work and quality records described below to verify conformance with inspection and work performance procedures, recordkeeping requirements, conformance with construction specification requirements, utilization of qualified inspection personnel, and issuance and use of specified materials.

a. Surge Line - SPIN WAT - RCPCFB

(1) The inspector observed installation of the surge line during welding to the pressurizer (weld 1-068H-W0003-05). The operation sheet was reviewed and compared with applicable procedures. The partially complete installation was compared with the requirements of TVA Dwg. 47W304-1, "Mechanical Reactor Coolant Piping".

(2) The following material and receiving inspection records were reviewed and compared with the requirements of QCP 1.6 and NCM, Section 3.6:

TVA 209 # WBNP76-0062
W Quality Release # 21845
TVA NSSS Release # TVA-2
TVA Receiving Inspection Checklist dtd. 11/10/75

(3) Attachment "A" to QCP 4.5, "Equipment Storage and Maintenance Record Sheet" for the surge line was reviewed and compared with the requirements of QCP 4.5.

b. Safety Injection Line to Second Isolation Valve (Pipe Spools 63-SI-164 and 63-SI-165)

(1) Pipe spools were observed as installed and compared with the requirements of DRAVO ISO E-2879-IC-90 and TVA Dwg. 47W435-8.

(2) The following receiving inspection and issue records were reviewed and compared with QCP 1.6 and NCM, Section 3.6:

TVA 209's WBNP77-7023 and 77-3800
TVA Receiving Inspection Checklists dtd. 5/16/77 and 12/22/76
TVA 575 # DRAVO 8863

c. Training records for a sample of the inspection personnel involved in the inspections of paragraphs a. and b. above were reviewed.

10. Exit Interview

The inspector met with the licensee representative denoted in paragraph 1 at the conclusion of the inspection and summarized the scope and findings of the inspection. The noncompliance of paragraph 7.f. was discussed in detail. The licensee had no questions or dissenting comments.