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

Report Nos.: 50-390/84-43 and 50-391/84-35

Licensee: Tennessee Valley Authority
500A Chestnut Street
Chattanooga, TN 3740[illegible]

Docket Nos.: 50-390 and 50-391

License Nos.: CPPR-91 and CPPR-92

Facility Name: Watts Bar

Inspection Date: May 21 - 25, 1984

Inspection at Watts Bar site near Spring City, Tennessee

Inspector: _____ 6/11/84
for James L. Coley Date Signed

Accompanying Personnel: R. W. Newsome

Approved by: _____ 6/11/84
J. J. Blake, Section Chief Date Signed
Division of Reactor Safety

SUMMARY

Area Inspected

This routine, unannounced inspection involved 66 inspector-hours on site in the areas of independent inspection effort (ultrasonic re-examination of Unit 2, loop 3, reactor coolant piping and re-examination of radiographs of wedges in Unit 1, feedwater isolation valves), observation of work activities on reactor coolant pressure boundary piping, followup on licensee identified items, and previous enforcement items.

Results

No violations or deviations were identified.

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REPORT DETAILS

1. Persons Contacted

*G. Wadewitz, Plant Manager, Construction
*Q. Miles, Project Managers Office
*T. Hayes, Supervisor, Nuclear Licensing Unit
*P. Wilson, Nuclear Licensing
*E. White, Construction Quality Assurance Branch

Other licensee employees contacted included construction craftsmen, technicians, operators, mechanics, security force members, and office personnel.

2. Exit Interview

The inspection scope and findings were summarized on May 25, 1984, with those persons indicated in paragraph 1 above. The licensee acknowledged the following inspection findings:

Unresolved item 390/84-43-01: Verify Design Criteria for Fillet Welds on Upper Head Injection Hanger to Pipe (Dwg. No. 1-87-031 sheet 1 of 3), paragraph 3.b.

3. Licensee Action on Previous Enforcement Matters

a. (Closed) Violation 390/84-25-02, Inadequate Instructions To Assure Cleanliness of Reactor Building Annulus Floor Drain Sump. TVA letter of response dated May 24, 1984, has been reviewed and determined to be acceptable by Region II. The inspector held discussions with the nuclear licensing engineer and examined the corrective actions as stated in the letter of response. The inspector concluded that TVA 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 action identified in the letter of response have been implemented.

b. (Open) Violation 390/84-15-01 and 391/84-12-01; Inadequate Corrective Action for Improper Weld Attachment of Shear Lugs. TVA letter of response dated May 2, 1984, has been reviewed and determined acceptable by Region II. However, during the inspector's evaluation of the licensee's corrective action at the Watts Bar site, two areas of concern were not adequately addressed by the licensee. The first concern consisted of the sample selection selected by ENDES for ultrasonic examination to determine whether welds attached to class A piping were full penetration welds. Included in this sample was a hanger which is depicted on WBNP hanger sketch 1-87-031 sheet 1 of 3, Rev. 907. This sketch required the welder to attach the hanger on Class A pipe with a fillet weld. TVA's code of record is the ASME Code (71S73) and this code requires that attachment welds to Class A

pipe be full penetration. Discussions with ENDES revealed that design had used requirements from the ASME B&PV Code (77S79). The inspectors questioned the licensee concerning this apparent deviation from the ASME Code requirements specified in the Watts Bar piping design specification. The licensee stated that a generic NCR had been issued on work done by EDS Nuclear, Inc., who had the design responsibilities when the hanger drawing had been issued. The licensee stated that a complete review would be made of this item to insure the generic NCR addresses this specific hanger application and guidelines would be established for invoking subsequent editions of the Code. This item was reported as Unresolved Item 390/84-43-01, Verify Design Criteria for Fillet Welds on Upper Head Injection Hanger To Pipe (Dwg. No. 1-87-031 Sheet 1 of 3).

In addition to the above, the inspectors reviewed the corrective action taken by the licensees QA staff for the review of NCRs. This corrective action consisted of providing the licensees QA reviewers with a computerized tracking printout of open and closed NCRs, 50.55(e) reports, and a historical file on NRC violations. These printouts were to help the QA reviewer determine whether NCRs were significant by observing whether they appeared generic or repetitive. The inspectors however reviewed the licensee's log of recent NCRs and found recurring NCRs on inadequate inspection of hangers. A review of recent NRC items also revealed that hanger inspections appeared to be inadequate. As a result of the observation, the inspectors requested the licensee to have the Quality Engineering Staff perform an audit of recently reported NCRs and NRC violations to determine the time period these inadequate inspections were performed and if possible, determine the hanger inspectors involved. The licensee agreed to audit this area and determine the cause of these repetitive violations. These audit findings and the licensees corrective actions will be reviewed by the inspectors on a subsequent inspection.

4. Unresolved Items

Unresolved items were matters about which more information is required to determine whether they are acceptable or may involve violations or deviations. New unresolved items identified during this inspection are discussed in paragraph 3.b.

5. Independent Inspection Effort - Units 1 and 2 (92706B)

a. Ultrasonic re-examination of Unit 2, loop 3, reactor coolant pressure boundary welds by Region II ultrasonic inspectors.

As a results of technological advances made in ultrasonic transducers during the past year, inspection of discontinuities propagating from the pipe inside diameter (ID) in centrifugally cast stainless steel can now be detected, accurately located, and sized with reliability. Region II inspectors utilizing the above equipment, re-examined the reactor coolant pressure boundary welds listed below, to determine the

differences in the preservice examinations performed by the licensee and the examination results that are capable of being obtained at the present time.

Areas of particular interest are within the bottom third of the weld and geometric reflectors at the pipe ID which may result in confusing results in subsequent inservice examinations. Geometric reflectors at the present time can be confirmed on Unit 2 by visual or surface inspection of the pipe ID. The following welds were examined by Region II examiners.

Weld Joint Nos.	Location	Shop/Field Weld	Size
RCS-3-3	Cross-Over Leg	Shop	31 Inch. Diameter 2.48 Min. Wall
RCF-G3-3	Cross-Over Leg	Field	31 Inch. Diameter 2.48 Min. Wall

The inspectors found geometric reflector at the pipe ID and acceptable, however recordable weld indications at approximately 3:00 o'clock and 9:00 o'clock on field weld RCF-G3-3. Radiographs for this weld were also reviewed; however, the ultrasonic indications were not visible on the radiographs. Discussions with TVA's inservice inspection (ISI) personnel revealed that TVA has decided to re-examine the reactor coolant pressure boundary piping welds on Unit 2. This decision by the licensee in light of the technological advances made in ultrasonics since the preservice examinations were performed and the fact that reflectors are present in the area of interest for ISI, may save TVA considerable man-rem, and possibility unnecessary repairs in the future.

b. Re-examination of radiographs of Dravo Valve Wedges in the main feedwater isolation valves.

Radiographs of wedges in main feedwater isolation valve nos. D66-291 and D66-259 were reviewed by the inspectors. Shrinkage in these valves had been questioned by NRC-NRR as it related to the lowest service metal temperature (LSMT) of +40°f. The inspector's review of the valve wedge radiographs concurred with the vendor's disposition based on the licensee's acceptance standards (E-186, type 1, Severity Level 2, 1973Ed.). However, as discussed with the licensee's corporate level III, these acceptance standards are not correct since they are for 2MV or Cobalt 60 radiography and the vendor radiographs were made with Betatron. However, this should not change the acceptance of the radiographs, since good quality radiographs were obtained. The licensee is in the process of obtaining the correct acceptance standards for comparison.

Within the areas examined, no violations or deviations were identified.

6. Reactor Coolant Pressure Boundary Piping - Observation on Work Activities - Unit 2 (49054B)

The inspector's observed liquid penetrant examinations for RCPB piping welds Nos. 2-068-A-T022-17 and 2-068-A-T022-27. The penetrant examinations were performed in accordance with licensee's approved procedure WBNP-QCP-4.13PTM which was at the work site. The inspectors observed the penetrant examinations to determine the following:

- Performance of prescribed NDE activities
- Proper test materials used
- Qualification of NDE personnel
- Evaluation of test results adequate
- Post cleaning of welds joint performed

Within the areas examined, no violations or deviations were identified.

7. Licensee Identified Items - Unit 1 (92700B)

(Closed) LI Item 390/84-10 "Target Rock Solenoid Valves on PASF Do Not Meet Back Pressure Requirements" (10 CFR 50.55(e)). The final report was submitted on April 27, 1984. The report has been reviewed and determined to be acceptable. The inspector held discussions with responsible licensee representatives, reviewed supporting documentation and observed representative samples of work to verify that the corrective action identified in the report have been completed.

(Closed) LI Item 390/84-12 "Pipe Supports Modeled In Incorrect Coordinate System (10 CFR 50.55(e)). The final report was submitted on March 23, 1984. The report has been reviewed and determined to be acceptable. The inspector held discussions with responsible licensee representatives, reviewed supporting documentation and observed representative samples of work to verify that the corrective actions identified in the report have been completed.

(Closed) LI Item 390/82-99 "Qualification of Process Piping With Instrument Lines Attached (10 CFR 50.55(e)). The final report was submitted on October 4, 1983. The report has been reviewed and determined to be acceptable. The inspector held discussions with responsible licensee representatives, reviewed supporting documentation and observed representative samples of work to verify that the corrective actions identified in the report have been completed.