



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

Report Nos. 50-438/80-04 and 50-439/80-04

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

Facility Name: Bellefonte Nuclear Plant

Docket Nos. 50-438 and 50-439

License Nos. CPPR-122 and CPPR-123

Inspection at Bellefonte site near Hollywood, Alabama

Inspectors: P. Kleinsorge

4/2/80
Date Signed

James L. Coley
J. L. Coley

4-18-80
Date Signed

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

4/21/80
Date Signed

SUMMARY

Inspection on March 18-21, 1980

Areas Inspected

This routine, unannounced inspection involved 61 inspector-hours on site in the areas of pipe capping and sealing (unit 1), welding filler material control (Units 1 and 2), safety-related piping (Units 1 and 2), reactor coolant pressure boundary piping (welding) - work observation (Unit 2), and safety-related structures (welding) - observation of work and work activities (Unit 1).

Results

Of the five areas inspected, no items of noncompliance or deviations were identified in three areas; two items of noncompliance were found in two areas (Infraction - Failure to Provide Appropriate Acceptance Criteria in Inspection Procedures - paragraph 7b and Infraction - Failure to Follow Procedure for Capping and Sealing During Piping System Fabrication - paragraph 5b).

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DETAILS

1. Persons Contacted

Licensee Employees

- *W. R. Dahnke, Project Manager
- *F. E. Gilbert, Construction Engineer
- *J. T. Barnes, QA Unit Supervisor
- *J. T. Walker, Assistant Construction Engineer
- *B. J. Thomas, Assistant Construction Engineer
- *D. F. Smith, Welding Engineering Unit Supervisor
- H. Johnson, Welding Engineer
- *F. J. Huffman, Assistant Construction Engineer
- *F. L. Moses, Mechanical Engineering Unit Supervisor
- *D. A. Freeman, Electrical Engineering Unit Supervisor
- *T. McCollum, Welding Engineer

Other licensee employees contacted included ten construction craftsmen, four technicians, and five office personnel.

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on March 21, 1980 with those persons indicated in paragraph 1 above. The items of noncompliance, described in paragraph nos. 5b and 7b, the unresolved item, described in paragraph 7a, and the inspector followup item, described in paragraph 7b, were discussed in detail. No dissenting comments were received from the licensee.

3. Licensee Action on Previous Inspection Findings

- a. (Closed) Deficiency 438/80-01-02, Failure to Follow Procedure for Visual Inspection. TVA letter of response dated March 3, 1980 has been reviewed and determined to be acceptable by Region II. The inspectors held discussions with the Project Manager and examined the corrective actions as stated in the letter of response. The inspectors 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 actions identified in the letter of response have been implemented.
- b. (Open) Unresolved Item 438/79-25-03, Incore Instrumentation Tube Welding and Code Case 1755-1 Authorization. This item was discussed with the Welding Engineering Unit (WEU) personnel, but the site is still waiting for information.

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. New unresolved items identified during this inspection are discussed in paragraph 7a.

5. Independent Inspection Effort

a. Construction Activities (Units 1 and 2)

The inspectors conducted a general inspection of the auxiliary building, fuel building, control building, turbine building, boilermaker fabrication shop, pipe shop, pipe hanger shop, NDE laboratory and Units 1 and 2 containment to observe construction progress and construction activities such as welding, nondestructive examination, material handling and control, housekeeping and storage.

b. Pipe Capping and Sealing (Unit 1)

On March 20, 1980 the inspectors accompanied by a representative of the licensee made a general inspection of Unit 1 Containment. The inspectors noted 11 safety-related pipes and assemblies whose pipe opening had no seals or had damaged seals. TVA procedure MEU-SOP-605 Rev. 1, "Cleanliness Control During Piping System Fabrication", paragraph 5.4 states, "The Mechanical Engineering Unit shall be responsible for performing surveillance to ensure opening on piping and equipment are sealed or capped as required". MEU-SOP-605 paragraph 6.6 requires all piping which has been cleaned or installed, to be capped or sealed and protected from further corrosion and contamination. Failure to follow established procedures is in noncompliance with 10 CFR 50 Appendix B Criterion V. This is an infraction and is assigned item no. 438/80-04-02 "Failure to Follow Procedure for Capping and Sealing During Piping System Fabrication".

c. Welding Filler Material Controls (Units 1 and 2)

The inspectors observed activities at seven weld material issue stations to determine adequacy of: weld material storage/segregation oven temperatures, issue records and return of unused weld material. The inspectors also observed work areas for uncontrolled weld material.

Within the areas inspected no items of noncompliance or deviations except as described in paragraph 5b were identified.

6. Reactor Coolant Pressure Boundary Piping (Welding)

a. Work Observation (Unit 2)

Field weld fabrication inspection and testing is being controlled by the ASME Boiler and Pressure Vessel Code, Section III, 1974 Edition

including summer 1974 addenda. In-process field welds in various stages of fabrication were randomly selected for observation in order to determine whether welding QC inspection and NDE were consistent with code and procedural requirements. Welds selected for this work effort were as follows:

<u>Weld No.</u>	<u>Size</u>	<u>System</u>	<u>Fabrication Stage</u>
2NC00008	32"	Reactor Coolant	Welding out
2NC00009	32"	Reactor Coolant	Welding out
2NC00010	32"	Reactor Coolant	Welding out
2NC00011	32"	Reactor Coolant	Welding out
2NC00019	32"	Reactor Coolant	Fitup

For the above welds, the inspector reviewed applicable, weld data sheets, weld rod issue slips, welder qualifications, welding filler material certification and receiving inspection records, detail weld procedures, weld repair history and corrective action records as applicable. Fitup and alignment, purge, weld prep bead appearance including undercut, arc strikes, etc., were checked to verify conformance with code and procedural requirements. Welding filler material control was inspected and is discussed in paragraph 5c above. QA/QC personnel monitoring work progress appeared to be adequately trained to perform the assigned tasks.

b. Radiographic Examination (Units 1 and 2)

The inspectors reviewed radiographs of selected reactor coolant butt welded joints to verify conformance to code and procedure requirements. Radiographs of the following welds were reviewed:

<u>Welds No.</u>	<u>Unit</u>	<u>Class</u>
1NC00008	1	1
2NC00003	2	1
2NC00012	2	1
2NC00014	2	1

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

7. Safety Related Piping

a. Observation of Welding Activities (Unit 1)

Safety-related piping is being installed in accordance with the ASME Boiler and Pressure Vessel (B&PV) Code, Section III, 1974 edition plus addenda through summer 1974. The inspectors observed field welding of

safety-related piping at various stages of completion for conformance to code and procedure requirements. The following welds were observed:

<u>Weld No.</u>	<u>Size (Inch)</u>	<u>Stage of Completion</u>
1NM00094R4	12" x 0.375"	Repair Welding out
1SM00099R2	32" x 1.340	Repair Welding out
1KC01108A	4" x 0.237	Welding out
1KC01108B	6" x 0.280	Welding out
1ND00383A	2" x 0.375	Welding out
1NM00073S1	12" x 0.375	Welding out/ inspection-visual
1NM00019	14" x 1.406	Welding out
1NV00834	2.5" x 0.276	Liquid Penetrant inspection in process

With respect to the welding filler material certification documentation and receiving inspection reports for Heat No. 743556, 3/32" x 36" Type ER 308, and Heat Number 5G534, .045" dia 2 lbs spool type ER-308 bare wire employed in welding joint Nos. 1NM00094R4 (above) and 1A703854 (see paragraph 8a), there appeared to be no direct connection between the receiving inspection reports and the material certification documentation. The receiving inspection reports did not include the material heat numbers. The contract numbers on the receiving inspection report did not match with those on the material certification documentation. The licensee stated that they would look further into the matter and will discuss it again on a future inspection. This matter was identified as unresolved item 438/80-04-04, "Unsubstantiated Welding Filler Material Receiving Inspection".

b. Socket Welding (Units 1 and 2)

The inspectors on March 18-19, 1980 examined eight completed and accepted socket weld flange to-pipe fillet welded joints to determine whether the fillet leg size was equal to or greater than 1.4 times the nominal pipe wall thickness as required by the ASME B and PV Code Section III figure ND-4427-1. The inspectors noted that the following joints did not comply with the above requirement.

<u>Joint No.</u>	<u>Size</u>	<u>System</u>
ONB-1251	2" Schedule 40	Chemical Addition and Boron Recovery
2NB-277	2" Schedule 40	Chemical Addition and Boron Recovery
1KE-1371	2" Schedule 40	Essential Raw Cooling Water
1KE-1311	2" Schedule 40	Essential Raw Cooling Water

In order to determine the cause of the inappropriate acceptance of the above joints, the inspectors noted that TVA Quality Control Procedure

BNP-QCP-7.5 revision 3 with addendum 3 "Visual Examination of Weld Joints" paragraph 7.2.5 requires socket fillet weld leg size to be 1.25 times the nominal pipe wall thickness minimum for all socket fillet welds. The above joints met the 1.25 criteria.

Failure to provide appropriate acceptance criteria in procedures for activities affecting quality is in noncompliance with 10 CFR 50 Appendix B, Criterion V. This is an infraction and is assigned item Nos. 438, 439/80-04-01 "Failure to Provide Appropriate Acceptance Criteria in Inspection Procedure".

The licensee stated that, as a result of items of noncompliance at other TVA sites as well the deficiency and the inspector followup item discussed in paragraphs 3a and 9(b) respectively, twenty-four socket welds have been reinspected. Of the twenty-four joints reinspected, twenty joints were determined to be unacceptable due to undersize leg or throat dimension. The results of the above reinspection were documented by TVA-BNP-Quality Control Investigation Report No. 3328. The licensee further stated that an ongoing investigation is being conducted to determine the full extent of the problem. In addition, a viable corrective action program has been committed, by the licensee, to be in effect by April 22, 1980. This matter was identified as inspector followup item 438, 439/80-04-03 "Licensee Identified undersize socket welds".

Within the areas inspected there were no items of noncompliance or deviations except as described in paragraph 7b were identified.

8. Safety-Related Structures (Welding) - Observations of Work and Work Activities (Unit 1)

The inspector observed field welding activities associated with safety-related supports outside containment during various stages of weld completion. The applicable welding code is AWS D1.1, Rev. 2-74. Observations were made in order to determine whether the requirements of applicable specifications, standards, work and/or inspection procedures were being met for the activities involved and in the following stages of weld completion:

- a. The inspector examined weld joints where joint preparation and alignment were complete, prior to welding and where welding was in progress to determine whether weld identification, weld procedure, welder qualification, weld material, specified NDE were in conformance with existing requirements, joint preparation/alignment, and evidence of QC verification.

<u>Weld Joint</u>	<u>Structure</u>	<u>Stage of Completion</u>
1A600712	MS Pipe Support	Fitup/welding out
1A600713	MS Pipe Support	Fitup/welding out
1A600714	MS Pipe Support	Fitup/welding out

(Cont'd)	<u>Weld Joint</u>	<u>Structure</u>	<u>Stage of Completion</u>
	1A600715	MS Pipe Support	Fitup/welding out
	1A600714	MS Pipe Support	Fitup/welding out
	1A600715	MS Pipe Support	Fitup/welding out
	1A703854	Spent Fuelliner	Welding out (note unsubstantiate welding filler receiving inspection see paragraph 7a)

- b. During observation of welding activities there did appear to be a sufficient number of qualified inspection personnel at the work site.
- c. Welding filler material control was inspected and is discussed in paragraph 5c herein.

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

9. Inspector Followup Items

- a. (Closed) Inspector Follow-up item No. 438/79-25-04, "Identification and Calibration of Penetrameters". This item concerned establishing a method for verify that penetrameters are receipt inspected and checked for size (calibrated) prior to issuance. The inspectors reviewed standard operating procedure WEU-SOP-710 Rev. 1 "Control of Standard Radiographic Penetrameters", which the licensee had developed to insure that penetrameters are calibrated and controlled prior to issuance. The inspectors also selected 50 penetrameters from field packs and reverified their calibration using a calibrated micrometer and pin gauges. No discrepancies were noted and this item is consider closed.
- b. (Closed) Inspector followup item No. 438,439/80-01-01, Training of Welding Inspectors for Socket Weld Size Inspection. This item identified the apparent need for additional inspector training in visual inspection of socket welds. The inspectors reviewed the licensee's completed documentation of training, and questioned several field inspectors concerning the requirements for visual inspection of socket welds. No problems were noted by the inspectors on the above actions and this item is considered closed.