



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

Report Nos.: 50-438/83-24 and 50-439/83-24

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

Docket Nos.: 50-438 and 50-439

License Nos.: CPPR-122 and CPPR-123

Facility Name: Bellefonte 1 and 2

Inspection at Bellefonte site near Scottsboro, Alabama

Inspector: J. L. Coley for E. H. Girard 10-4-83
E. H. Girard Date Signed

Approved by: J. L. Coley for J. J. Blake 10-4-83
J. J. Blake, Section Chief Date Signed
Engineering Program Branch
Division of Engineering and Operational Programs

SUMMARY

Inspection on September 6-9, 1983

Areas Inspected

This routine, unannounced inspection involved 26 inspector-hours on site in the areas of licensee action on previous enforcement matters, reactor coolant pressure boundary piping, licensee identified items, and inspector followup items.

Results

Of the four areas inspected, no violations or deviations were identified in two areas; two apparent violations were found in two areas (Questionable ultrasonic examinations, paragraph 3.b; and the action to preclude recurrence stated in NCR 2089 has not been implemented, paragraph 6.b.(1)).

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *L. S. Cox, Project Manager
- *B. J. Thomas, Quality Manager
- *P. C. Mann, Nuclear Licensing Unit Supervisor
- H. C. Johnson, Assistant Quality Manager, Inspection-Hanger, Mechanical and Welding
- *K. Lawless, Welding Engineering Unit Supervisor
- R. Norton, Welding Quality Control Unit B Supervisor
- *D. Smith, Assistant Construction Engineer, Mechanical and Welding

Other licensee employees contacted included construction craftsmen and QC inspectors.

NRC Resident Inspectors

- *J. D. Wilcox, Senior Resident Engineer - Construction
- *M. Branch, Senior Resident Engineer - Operations

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on September 9, 1983, with those persons indicated in paragraph 1 above. The licensee was informed of the inspection findings listed below. The licensee acknowledged the inspection findings with no dissenting comments.

Violation, 438, 439/83-24-01, Questionable Ultrasonic Examination, paragraph 3.b.

Violation, 438, /83-24-01, The action to preclude recurrence stated in NCR 2089 has not been implemented, paragraph 6.b.(1).

Unresolved Item, 438, 439/83-24-03, Possible Failure to Recognize Program Deficiencies; paragraph 6.

3. Licensee Action on Previous Enforcement Matters

- a. (Closed) Violation (438, 439/82-23-04): Inadequate Investigation of Generic Aspects and Failure to Identify Cause for Significant Deficiencies.

The licensee's letter of response dated October 7, 1982, has been reviewed and determined acceptable by Region II. The inspector held discussions with the Nuclear Licensing Unit Supervisor and examined the

corrective actions as stated in the letter of response. The inspector concluded that the licensee 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. (Closed) Unresolved Item (438, 439/81-16-01): Ultrasonic Examination Reports for Containment Penetration Welds Could Not Be Located.

This item identified an inspector's concern that the ultrasonic examination UT reports for containment penetration welds 1NIO0012, 1NIO0013 and 1NIO0014, could not be located, as described in NRC Report 438, 439/81-16. This concern was reexamined in a subsequent inspection, as described in NRC Report 438, 439/81-28. In this subsequent inspection the inspector was shown ultrasonic examination reports reportedly reconstructed from the original examiners notes. The original examinations were performed November 30, 1979, and were reconstructed July 6, 1981. During inspection 81-28 the inspector requested the ultrasonic examination reports for welds 1NIO0009S2 and 1NIO0010R1. These reports could not be located. As a consequence, the licensee issued Quality Control Investigation Report (QCIR) 13,988, which documented the missing reports and required (1) a change to Record Review Procedure QCRU-RI-134 to provide for a review to assure UT reports were provided for future examinations, and (2) a search to determine whether other UT reports were missing.

In the current inspection, the inspector reviewed the following records and procedures to assess the adequacy of the licensee's performance in reporting of UT and other nondestructive examination results and determine the status of the unresolved item:

- (1) Ultrasonic and magnetic particle examination records for welds (Units 1 and 2)
- (2) QCIR 13,988
- (3) Quality Control Procedure BNP-QCP-7.2 R1, Ultrasonic Examination
- (4) QCRU-RI-134

The examination records were reviewed by the inspector to verify their availability and content in accordance with licensee procedural requirements. The QCIR was reviewed to verify completion of the disposition of UT records, as stated by the licensee and noted in NRC Report 438, 439/81-28. QCRU-RI-134 was verified to have been changed as noted above. Procedure BNP-QCP-7.2R1 was for general adequacy and compliance with the applicable Code, ASME Section V (74) (hereafter the Code).

In reviewing the licensee's UT examination reports and UT procedure, the inspector noted the following discrepancies:

- (1) The Code (ASME Section V(74)) and licensee procedure (BNP-QCP-7.2R1) required that the calibration block be of the same or equivalent P number material as the material examined. The material examined is carbon steel (P-No. 1). The UT reports indicated that calibrations for the final UTs were made with calibration block BNP-3. BNP-3 is a stainless steel (P-No. 8) block and its use violates the Code and procedural requirements.
- (2) The piping examined was over 1 but less than 2 inches thick. The Code and the licensee's procedure specify use of a calibration block $1\frac{1}{2}$ inch or T (material thickness) thick with a $\frac{1}{8}$ inch diameter (dia.), $\frac{1}{4}$ T (block thickness) located calibration hole. The calibration block indicated in the final weld UT reports, BNP-3, is a $\frac{3}{4}$ inch thick block with a $\frac{3}{32}$ inch dia. calibration hole located at $\frac{1}{2}$ T.
- (3) The procedure does not include the Code specified limit on scanning rate (not to exceed 6 inches per second).
- (4) Neither the procedure nor the records indicate requirements for or performance of rechecks of calibration. Such rechecks are needed to assure maintenance of calibration.
- (5) The Code requires that the records identify the procedure sufficiently to repeat the examination at a later date. The procedure did not require and the licensee did not record the following data necessary to repeat the examination:
 - Scan directions and distances
 - All DAC points and point amplitudes
 - Procedural steps used to correct DAC curve utilizing transfer data
 - Transfer data
- (6) The Code and the licensee's procedure require examination of the complete volume of weld metal. Considering the counterbore condition indicated on the weld prep drawings, it appears that full weld examination could not be obtained, especially in the case of the repaired welds identified 1NI00009S2 and 1NI00010R1, which were examined with 45° transducers. The UT reports indicate that "full coverage" was obtained on all 10 welds.
- (7) The licensee's procedure requires recording of calibration data but does not state what calibration data must be recorded.

The licensee's procedure for records, BNP-QCP-10.7, requires UT records to be filed such that they are readily retrievable. The licensee's inability to retrieve the UT records for penetration

welds, identified relative to this item in NRC Reports 438, 439/81-16 and 81-28; together with the other deficiencies related to ultrasonic examinations described above are considered examples of noncompliance with 10 CFR 50, Appendix B, Criterion V requirements. The examples referred to indicate noncompliance with Criterion V requirements that procedures for activities affecting quality, such as the referred to UT and records procedures, contain documented criteria for determining that important activities are satisfactorily accomplished, and that the activities are accomplished in accordance with the procedures. The noncompliance was identified as violation 438, 439/83-24-01, Questionable Ultrasonic Examinations, with the opening of this violation unresolved item 438, 439/81-16-01 is closed.

4. Unresolved Items

Unresolved items are 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 6.b.(2).

5. Reactor Coolant Pressure Boundary RCPB Piping - Unit 2

The inspector observed welding and non-welding related work and work activities on RCPB piping to verify their compliance with licensee commitments and regulatory requirements, including the requirements of the applicable code - ASME Section III (74S74).

a. RCPB Piping - Observation of Non-Welding Work and Work Activities (49054)

(1) The inspector observed installed High Pressure Injection System thermal sleeves and reviewed related records to verify that prescribed rolling and drilling described on sequence control charts was being completed in accordance with procedures, instructions and drawing requirements for:

- Inspections
- Record keeping
- Materials
- Use of qualified personnel

(2) The inspector observed the nozzles containing the thermal sleeves, referred to above, to verify that protective caps had been installed to prevent entry of contaminants as required by procedures.

b. RCPB Piping - Observation of Welding Work and Work Activities (55073 and 55804)

The inspector observed 1.5" dia. x.2" wall Reactor Coolant Drains and Vents System piping weld 2NK00252A at fitup, welding in-progress just beyond the root pass, and at penetrant inspection of the completed weld to verify that commitments, regulatory, Code, and implementing procedural requirements were being met for:

(1) Fitup

- Weld identification/location
- Joint preparation and alignment
- Evidence of QC verification

(2) Welding above the root pass

- Weld identification/location
- Proper weld procedure
- Welder identification and qualification

(3) Penetrant inspection of the completed weld

- Proper surface condition
- Proper nondestructive examination

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

6. Licensee Identified Items (LIIs) [50.55(e)] (92700)

- a. (Closed) LII (439 CDR 81-39): Faulty Welds on Mirror Insulation Support Steel. The final report for this item and a revised final report were submitted to Region II in letters dated August 27 and September 16, 1981, respectively. The reports were reviewed and determined acceptable. The item involved weld deficiencies discovered in the reactor vessel mirror insulation support structure for Unit 2. The structure had not been released for shipment from the subcontractor when the discovery was made. The inspector discussed the item with the licensee's Nuclear Licensing Supervisor and reviewed supporting documentation (Nonconforming Condition Report 1449) to verify that the corrective action identified in the report was adequate and complete.

b. Items Determined Not Reportable

The inspector reviewed the licensee's reporting and disposition for the following items which were originally reported, but subsequently were determined to be not reportable in licensee evaluations:

(1) 438 CDR 82-81: Overpressurized Systems During Flushing

This item involved overpressurization of portions of the Chemical Addition and Boron Recovery (NB), Makeup and Purification (NV), Demineralized Water (RE) and Waste Disposal (WD) Systems. The overpressurization occurred during a flush and was documented on the licensee's Noncomformance Report (NCR) 2089. As documented on the NCR the overpressurization was determined to be a significant condition adverse to quality. The inspector reviewed the description of the overpressurization, the disposition, the apparent cause and the corrective action, as described on NCR 2089; and discussed the matter with cognizant licensee personnel and the NRC Senior Resident Inspectors to determine whether the licensee's actions were in accordance with regulatory requirements. The apparent cause identified in NCR 2089 was that a valve was closed inadvertently in the main flush path. The corrective actions specified to preclude recurrence included, as described in a memorandum from L. S. Cox (Bellefonte Nuclear Plant Project Manager) to R. M. Hodges (Bellefonte Design Project, Project Manager) dated May 31, 1983, "Use of Lead Seals on Valves After Alignment to Assure Proper Configuration Controls Maintained". Other actions to preclude recurrence identified in the memorandum included retraining of involved personnel and changes to flushing procedure BNP-CTP-6.1 incorporate the following:

- A technical review of flush procedures by other engineering disciplines.
- Requirements that pressure switches be used to shut down pumps and eliminate inadvertent overpressurizations.
- A walk-down of in-line valves just prior to initial pump starts or pump starts after shut down for an extended period of time (one shift or more) to verify proper valve positions.

From discussions with cognizant personnel and a review of procedure BNP-CTP-6.1, the inspector determined that the licensee had not implemented the use of lead seals as specified. 10 CFR 50, Appendix B, Criterion XVI, requires that, for significant conditions adverse to quality, measures shall assure that corrective actions are taken to preclude repetition. The licensee's failure to implement the use of lead seals to maintain proper valve positions, as specified in their corrective action for NCR 2089 is considered noncompliance with the above stated Criterion XVI requirements. This noncompliance was identified to the licensee as violation 438/83-24-02. The action to preclude recurrence stated in NCR 2089 has not been implemented. The licensee's report of June 21, 1983, which informed Region II that the overpressurization had been determined not reportable, stated that since the involved piping had not been damaged sufficiently to

affect safe plant operation, there was no safety implication to Bellefonte. The inspector informed the licensee that he considered this statement partly incorrect in that the failure of the licensee's controls to preclude overpressurization had safety implications.

(2) 438 CDR 81-61: Reactor Coolant Pump Impeller to Shaft Mismatch

This item involved a misfit of a pump shaft to an impeller in a Reactor Coolant Pump and the manufacturer's failure to identify this condition during their inspection. The licensee's report of August 16, 1983, which informed Region II that the item had been determined not reportable and indicated, with regard to the inadequate licensee inspection, that there were no safety implications to Bellefonte. The inspector informed the licensee he considered this statement incorrect, as the manufacturers inadequate inspection had safety implications.

The inspector noted, from a review of related licensee data, associated with NCR 1596, that the licensee had taken actions to determine the cause of the occurrence and to prevent recurrence. The safety implications were, in fact, addressed.

The response provided in the licensee's report and in the report for item 438 CDR 82-81, described in (1) above, indicates a possible tendency to consider only the status of adversely affected hardware rather than the program deficiency that permitted hardware problem to occur. The inspector identified his concern relative to this as an Unresolved item 438, 439/81-24-03, Possible Failure to Recognize Program Deficiencies. Region II will examine this concern further in subsequent reviews of the licensee's actions in dealing with hardware problems.

Within the areas examined, one violation was identified, as described in 6.b.(1) above.

7. Inspector Followup Item (IFI)

(Closed) IFI (438, 439/81-16-02): RT Records Do Not Indicate Actual Radiographic Setup.

This item identified an inspector's concern that the technique sheets for radiography on certain containment penetration welds indicated that the item being radiographed was a single pipe whereas it was a sleeve with a smaller pipe inside. The licensee agreed to modify the technique sketches for the subject penetration welds to depict proper condition. The commitment was reported in NRC Report 438, 439/81-16.

The inspector questioned the cognizant Assistant Quality Manager and the Welding Engineering Unit Supervisor regarding the status of this commitment. The inspector was informed that the commitment had not been met and that it

would not be met - as the actual weld configuration could be determined by the radiographers from the applicable drawings. The inspector agreed that there was not a clear requirement or absolute need for the technique sheet modifications and informed the licensee the item would be closed. The inspector also noted that while minimum requirements appeared to have been met, proper depiction of the piping configuration on the technique sheets would have facilitated proper radiography.