



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

Report Nos.: 50-438/83-31 and 50-439/83-31

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: *P. E. Johnson* 1/3/84
Date Signed
 In M. W. Branch

Approved by: *Caudle A. Julian* 1/3/84
Date Signed
 In Caudle A. Julian, Chief, Project Section 1A
 Division of Project and Resident Programs

SUMMARY

Inspection on November 1 - December 6, 1983

Areas Inspected

This routine, unannounced inspection involved 66 resident inspector-hours on site in the areas of construction surveillance, licensee identified items, pre-operational testing, environmental controls for solid state circuit cabinets, licensee action on previous enforcement matters and ASCO solenoid valve orientation.

Results

Of the six areas inspected, no violations or deviations were identified in four areas; two apparent violations were found in two areas (Environmental controls for solid state circuit cabinets - paragraph 8; and ASCO solenoid valve orientation - paragraph 9).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *L. Cox, Plant Manager
- A. Qualls, Plant Superintendent
- T. Bragg, Assistant Plant Superintendent
- *B. Thomas, Quality Manager
- R. Young, Construction Engineer
- *H. Johnson, Assistant Quality Manager
- *D. Bridges, Assistant Quality Manager
- *D. Smith, Compliance Engineer
- *P. Mann, Nuclear Licensing Supervisor
- *R. Ives, Jr., Nuclear Licensing
- *K. Mali, Nuclear President Licensing
- *W. Whittle, Quality Assurance Evaluator

Other licensee employees contacted included 10 construction craftsmen, 8 technicians, 3 operators, 5 mechanics, 3 security force members and 7 office personnel.

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on December 6, 1983, with those persons indicated in paragraph 1 above. The licensee acknowledged the inspection findings.

3. Licensee Action on Previous Enforcement Matters

- a. (Closed) Unresolved Item 438, 439/82-19-02 "Nuc PR Calibration Equipment." The inspector reviewed the licensee corrective action specified on Corrective Action Reports (CAR) 82-6 and 82-7. The licensee has modified the confirmation control sheet for safety-related instrumentation to include cleanliness and tightening requirements. This action is satisfactory and the item is closed.
- b. (Closed) Unresolved Item 438, 439/83-13-01 "Nuc PR Procedures and Implementation for New Fuel Security". This item was upgraded to a violation in Inspection Report 438, 439/83-15.
- c. (Closed) Unresolved Item 438/82-28-09 "Condensate Pots". This item was upgraded to a violation in Inspection Report 438/83-21.

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. One new unresolved item identified during this inspection is discussed in paragraph 10 .

5. Independent Inspection Effort-Construction Surveillance

The inspector witnessed activities in the following areas:

(Unit 1 Reactor Building) Installation of main steam, reactor hot leg and feedwater piping whip restraints; installation of decay heat removal and component cooling piping; installation of steam generator support platforms; and modification of auxiliary feedwater supply to steam generators.

(Auxiliary Building) Installation of portions of chemical addition and boron recovery, core flood recirculation, and spent fuel cooling systems; installation of pipe supports in Unit 1 main steam valve room; pulling and terminating of cables for various safety related systems; checking of solid state control systems; and re-tubing of component cooling heat exchangers.

No violations or deviations were identified.

6. Licensee Identified Items (LII)

- a. The resident inspector reviewed with site personnel the adequacy of licensee actions on the following LII's:

(Closed) CDR 438/81-10, 439/81-10, "Mislocation of Flow Characteristic Indicators." TVA submitted a final revised report on January 11, 1982 and supplemented this report on February 9, 1983. The resident inspector reviewed the corrective action specified in the above reports and inspected the hardware to verify actions. The licensee corrective actions appear to be prudent and proper and this item is closed.

- b. The inspector reviewed the in-progress status of the following LII's:

<u>CDR#</u>	<u>NCR#</u>	<u>Title</u>
438/83-53	BLNNE8311	Size of lines & flow restrictors
439/83-46		is above that which ensures a controllable cooldown per FSAR
438/83-54 439/83-47	2491	Contact gapes in HFA relays not adjusted properly
438/83-55 439/83-48	NCR-BH001	Defective PSCO shock arrestor capstand spring tang

438/83-56 439/83-49	BLNBLP8336	Analysis of some HVAC supports do not include mass in natural frequency calculation
438/83-57 439/83-50	BLNCEB8307	Disagreement in MODE analysis data
438/83-58 439/83-51	2515	Carbon steel Dowell pin found in HPI pump

No violations or deviations were identified.

7. Inspector Followup Item

(Closed) Inspector Followup Item 438, 439/83-26-01 "Shrink Pass Weld Surface Condition." During a previous inspection the inspector has noted that the surface condition of shrink pass weld joint INDO0287B was very rough. The inspector requested and received a listing of all shrink pass welds and through random sampling verified that the conditions noted on weld INDO0287B was an isolated case. This item is closed.

8. Maintenance Covers on Solid State Cabinets

During a facility tour on November 8, 1983, the inspector noted that the heat dissipation louvers on the solid state control cabinets in the Train "A" and "B" instrument rooms were covered. Several of these cabinets were energized and the metal exterior of these cabinets was very hot to the touch. The inspector notified the Electrical Engineering Unit supervisor and he promptly ordered the covers removed.

During a followup investigation of this event, the inspector discovered that Consolidated Control Corporation, who supplied these cabinets had specified a 50-104 degree F temperature range limit for the equipment that they had supplied under contract #85550. The inspector interviewed the responsible engineer for this equipment and determined that the covers were installed to prevent dirt from entering the cabinets but the adverse effects of not allowing heat to exit was not considered. It should be noted that the metal exterior of the cabinets exceeded the 104 degree F maximum temperature specified by the manufacturer and the interior components were subjected to an even hotter temperature, potentially damaging the cabinets.

Quality Control Procedure (QCP) 1.3 Revision 4, contains site instruction to implement the Quality Assurance Program requirements to ensure that special environments, such as temperature levels, are maintained. This procedure specifies that the responsible engineering unit shall review vendor manuals for requirements and specify and maintain an inspection and maintenance program to ensure these requirements are satisfied. This failure to specify and maintain an inspection and maintenance program to control the temperature of solid state control equipment is identified as violation 438, 439/83-31-01 "Maintenance Covers on Solid State Cabinets."

9. Orientation of ASCO Solenoid Valves

During a facility tour on November 7, 1983, the inspector noted that the operators on containment isolation valves INV-1FSV-152 and INV-1FSV-140 were mounted in a position that oriented the solenoids of the ASCO Model 206-380 solenoid valve in a horizontal position. ASCO Solenoid Valve Catalog NP-1 states that Model 206-380 Solenoid valves must be mounted with solenoid vertical and upright. TVA investigated this finding and discovered several additional valves that are improperly orientated and documented the nonconforming condition in NCR 2551.

Additionally it should be noted that Bellefonte's Quality Control Procedure (QCP) 6.9 Revision 3 requires in part that proper orientation of valves and operators be verified. However, this procedure does not require verification of sub-parts of the valves or operators. This failure to prescribe and implement appropriate acceptance criteria in order to properly orient ASCO solenoid valve is identified as violation 438/83-21-02 "Orientation of ASCO Solenoid Valves."

10. Preoperational Test Program

During a review of TVA's Preoperational Test Program for Bellefonte, the inspector noted that TVA had committed to including inspection hold points in their test procedures. This commitment is included in TVA's accepted QA Program (TVA-TR75-1A, Revision 5) and also Section 4.1 of the Operational Quality Assurance Manual.

To implement the above upper-tier requirements Bellefonte standard practice BLA 3.2 (Title-Format and Content of Instructions) requires in Part 1, section 10, that "Whenever an activity requires the witnessing by an independent person to assure quality, hold points shall be provided in the instruction to certify satisfactory completion of the activity. BLM-5 contains the requirements for including QC hold point inspection in instruction."

BLM-5 states that "The objective of the QC inspection program is to help maximize the reliability of CSSC equipment by providing an independent verification of the quality of work performed. For this reason QC inspection hold points shall be established when there is a reasonable probability of an undetected nonconformance that could adversely affect plant safety." Examples of when to use a QC hold point are provided in BLM-5 and include "Characteristics of electrical components or circuits such as cable routing, conduit and cable tray installation, splicing, lugging and potting, tightness of connections, and penetration and firestop installation, which cannot be verified by postmaintenance or modification testing."

The following Preoperational Test Procedures were reviewed for inclusion of QC hold points.

- PT-EJ-01 - Vital AC Power System
- PT-EG-01E - Class IE (Standby) AC Distribution System (Load Capability Test)
- PT-EG-01A - Class IE Engineered Safety System AC Auxiliary Power System 6.9KV
- PT-EU-01A - 125 DC Battery Test
- PT-GC-01B - DG Building CO2 Fire Protection System
- PT-IJ-02 - Emergency Core Cooling System Leak Detection System
- PT-MM-02 - Cranes and Heavy Equipment
- PT-MM-01 - Reactor Building Crane Test

Test PT-EJ-01 and PT-EU-01A removed and reinstalled numerous electrical connections, yet QC hold points were not specified in the test procedures. It should be noted that the procedures did specify a witness of the reconnections but the witness activity was not performed by the QC organization. The inspector did not identify any procedures where, through the lack of QC hold points, implementation was not completed in an acceptable manner. The listed examples do appear to meet the description of QC hold points required by BLM-5 and BLA 3.2. Pending clarification of the intent of BLA 3.2 and BLM-5 with respect to inclusion of QC hold points in preoperational test procedures, this item is identified as Unresolved Item 438, 439/83-34-03.