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

Report Nos.: 50-438/84-26 and 50-439/84-26

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 Conducted: December 1-31, 1984

Inspectors: for J. W. York — Date Signed: 1/23/85

for W. C. Bearden — Date Signed: 1/23/85

Approved by: for S. P. Weise, Section Chief
Division of Reactor Projects — Date Signed: 1/23/85

SUMMARY

Scope: This routine unannounced inspection involved 99 resident inspector-hours onsite in the areas of licensee action on previous enforcement matters, independent inspection, welding of reactor coolant pressure boundary, welding of safety-related piping, instrumentation, and licensee identified items

Results: One violation was identified - failure to follow training procedure.

REPORT DETAILS

1. Licensee Employees Contacted

*L. Cox, Project Manager
*R. Young, Construction Engineer
*B. Painter, General Construction Superintendent
*H. Johnson, Assistant Quality Manager
*D. Bridges, Assistant Quality Manager
*T. Wilkinson, Assistant Construction Engineer
*W. McCollum, Supervisor, Instrument Engineering A
*J. Barnes, Supervisor, QA Unit
*P. Mann, Nuclear Licensing Supervisor
*D. Smith, Compliance Engineer
T. Poe, Craft Instrument Supervisor
D. Rose, Supervisor, Training

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

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on January 2, 1985, with those persons indicated in paragraph 1 above. The licensee was informed of the inspection findings and the violation described in paragraph 7 was discussed. The licensee acknowledged the inspection findings with no dissenting comments. At no time during the inspection period did the inspector provide written material to the licensee. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection.

3. Licensee Action on Previous Enforcement Matters

(Closed) Violation 438/83-28-02, Failure to Maintain Heat on ERCW Pump Motor. TVA's letter of response dated December 28, 1983, has been reviewed and determined to be acceptable by Region II. The inspectors held discussions with the licensee 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 violation, performed the necessary survey and followup 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.

A tour was made during this inspection to assure that the heat was being maintained on the ERCW pump motors. The inspectors observed that the heat was maintained for all four ERCW pump motors for each unit. The inspectors

checked the maintenance inspection records for the last two months and noted that heat on the motors had been maintained. This item is closed.

4. Independent Inspection - Unit 1 (92706)

Bellefonte facility has Transamerica Delaval diesels and is currently disassembling the Unit 1 diesels for inspections as prescribed by the Diesel Owners Group guidelines. The inspectors held discussions with a representative of the Owners Group who performs the alloy identification and hardness tests and observed the hardness and alloy identification tests for the connecting rods 4-L and 5-L. Magnetic particle testing of left bank nos. 3 and 4 areas of the water jacket were observed. No indications were found in these areas nor in the four areas on the other side of the water jacket.

During a walk through inspection, two blended areas were noted on a 2½ inch diameter pipe in the makeup and purification system. The piping was identified as Navco spool piece no. 1NV225. The licensee had properly documented the blended areas and had addressed the minimum wall thickness requirement on Quality Control Investigation Report (QCIR) No. 7138.

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

5. Welding of Reactor Coolant Pressure Boundary - Unit 1 (55073C)

The following welds were inspected in various stages of completion:

- Weld No. 1NV0870FS1 in Letdown Cooler 1B
  Class of Weld - ASME Section III Cl.1
  Welder - FANQ
  Detailed Welding Procedure - GT88-0-1 Rev. 6
  Filler Metal Heat No. - C4611R308L
  Observed dye penetrant inspection of finished weld.

- Weld No. 1NV00870AT1
  Class of Weld - ASME Section III Cl.1
  Welder - FANQ
  Detailed Welding Procedure - GT88-0-1 Rev. 6
  Filler Metal Heat No. - C4611R308L
  Observed fitup and visual inspection of tack welds.

The inspector checked these welding and fitup operations for compliance with visual, documentation, welder qualification, weld metal qualification, and nondestructive inspection and requirements.

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

6. Welding of Safety-Related Piping - Unit 1 (55083C)

The following welds were inspected in various stages of completion:

- Weld No. 1SM00239 in the Main and Reheat Steam Systems
  Class of Weld - ASME Section III C/2
  Welder - FBHQ
  Detailed Welding Procedure - GT11-0-1A Rev. 6
  Filler Metal Heat No. - 49911 (1/8", type E7086)

- Weld No. 1CR00482
  Class of Weld - ASME Section III C/.2
  Welder - FBXT
  Detailed Welding Procedure - GT11-0-1A Rev. 6
  Filler Metal Heat No. - 658C253 (3/32", type E7086)

The inspector checked these welding operations for compliance with visual, documentation, welder qualification, weld metal qualification, and non-destructive inspection and requirements.

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

7. Instrumentation - Unit 1 (52153C)

A list of current instrumentation craft foremen was obtained by the inspectors and a sample selected to check for compliance with Bellefonte procedure QCP-10.30, Rev. 5, Craft Quality Assurance Training. One foreman was found to have no recorded training. Paragraph 2.1 of QCP-10.30 states in part that the guidelines of this procedure are applicable to active hourly foremen, included are dual rated foremen who are expected to serve as active hourly foremen for a period of five working days or more and who perform activities on nuclear safety-related structures, systems, and components. The craft foreman in question was dual rated and had served as an active duty hourly foreman for a period of seven days at the time of the inspection. In addition, this foreman was supervising activities on safety-related systems. Therefore, this foreman was under the requirements of QCP-10.30.

Paragraph 6.1.6 of this QCP states in part that craft foreman/dual rated are to be trained and qualified to appropriate Construction Training Modules (CTMs) prior to being assigned to a new work activity. The inspector determined that the foreman in question had not been trained to the appropriate Construction Testing Modules. This constitutes a violation for failure to follow procedures for training instrumentation craft foremen (438/84-26-01).

8. Licensee Identified Items (LII) - Units 1 and 2 (92700)

a. The following LIIs on which the work was completed were reviewed for closing:

(1) (Closed) CDR Nos. 438/83-19 and 439/83-15, Pressure Drop Across Velan 2½ Inch Stop/Check Valves. In a final report dated January 25, 1984, the licensee stated the following:

During flushing operations of the makeup and purification (MU/P) and high pressure injection (HPI) systems, seven of nine 2-½ inch 1500 lb. Velan stop/check valves intermittently failed to fully open and/or have shown indication of excessive pressure drop.

Velan has determined by testing that the cause of the excessive pressure drop and the intermittent failure of the valves to fully open can be attributed to the insufficient area of holes in the valve disc which connects the downstream side of the valve with the area above the disc.

Velan has reviewed all stop/check and piston check discs and has determined that the discs must be modified by drilling four holes in the side of the discs. The existing valve discs for Unit 1 are to be replaced with Velan-supplied newly modified valve discs. All Unit 2 stop/check valve discs will be modified.

The inspectors reviewed the correspondence for the appropriate Nonconformance Report, NCR No. 2212, and reviewed a sampling of the Sequence Control Charts used to either replace or modify the valve discs. The licensee stated that the valves worked properly during flushes after the modification. This item is closed.

(2) (Closed) CDR Nos. 438/83-38 and 439/83-33, Breaking of Welded Studs. In a final report dated December 16, 1983, the licensee stated the following:

Some of the 1/4-inch welded studs used on seismic conduit supports are breaking during torque-tightening or after a period of time subsequent to tightening. An informal test of approximately 30 studs conducted by TVA's Division of Construction (CONST) personnel indicated a breaking torque of 7-1/2 to 12-1/2 ft-lbs. TVA drawing 4RA0560-X2-13 R6, "Typical Seismic Conduit Support" specifies a minimum torque requirement of 6 ft-lbs. However, TVA's process specification 3.C.5.3(a) specifies a torque valve of 5 ft-lb for 1/4-inch studs. This corresponds to the maximum torque value for 1/4-inch studs recommended by the American Welding Society (AWS) Code D1.1. Stud manufacturers recommend a torque value of no more than 60 percent of the yield strength. For 1/4-inch studs which have a yield strength of 55 ksi, 60 percent of 55 ksi corresponds to a torque value slightly in excess of 4 ft-lbs. Therefore, the specified maximum torque on the installation drawing is 20-30 percent higher than the maximum torque recommended by the steel manufacturers and AWS D1.1.

TVA drawings 4BA0892-X2-9, 4BB0892-X2-2, and 4RA0560-X2-13 have been revised to correspond to the maximum torque values specified in the AWS D1.1. All broken welded studs have been replaced by TVA's Division of Construction.

The licensee stated that all of the overtorqued welded 1/4-inch welded studs had been replaced. The inspectors examined drawing nos. 4BA0892-X2-9 Rev. 8, 4BB0892-X2-2 Rev. 13, and 4RA0560-X2-13 Rev. 8 and noted that the proper torque value requirements for these welded studs were incorporated in the drawings. This item is closed.

b. The inspectors reviewed a sample (11 items) of the following list of LIIs that the licensee had downgraded from a reportable item. After examining the 11 final reports, the inspectors concurred with the licensee action and consider all of the listed items closed.

CDR Nos.	Title
438/81-09 439/81-09	Main feedwater and containment isolation valve miscategorization (BLNBLP8015)
438/81-24 439/81-26	Analysis for loss of feedwater event (BLNNEB8102)
438/81-45 439/81-47	Dresser safety valves (BLNNEB8109)
438/81-47 439/81-50	Tolerance for tubular steel cable tray hangers (1478)
438/81-61	Reactor coolant impeller to shaft mismatch (1596)
438/81-77 439/81-76	Allowable stresses for pipe support design (BLNCEB8110)
438/82-05 439/82-05	Seismic support lugs on 2" or less stainless steel pipe (1690)
438/82-17	Improper use of circuit breakers to shed non-class IE loads (BLNEEB8201)
438/82-19	Deficient weldolets on NAVCO spool pieces (1740)
438/82-29 439/82-26	Errors in WERCO program distributed by AAA technology (BLNCEB8204)
438/82-28 439/82-25	Valves not required to the applicable design requirements (BLNBLP8214 and BLNBLP8215)

438/82-44 439/82-40	Expansion anchors spacing criteria (GENQAB8203)
438/82-55 439/82-49	Conduit loading on Annulus framing in Reactor Building (BLNQAB8204)
438/82-54 439/82-48	Venting of high points in the essential raw cooling water system (BLNQAB8203)
438/82-62 439/82-55	QA documentation of radiation monitoring equipment by G. A. Technologies Incorporated (82V-29, def. 3 & 4)
438/82-63 439/82-56	Sheared motor pinion keys in Limitorque motor operators (GENNEB8209)
438/82-69 439/82-62	Addition of locking devices to valves (GENNEB8210)
438/82-73 439/82-67	Fins and heads on star model QE sprinkler heads (BLNMEB8208)
438/82-77 439/82-71	Substitution of grouted anchors for wedge bolts without ensuring adequate shear load capacities (2072)
438/83-16 439/83-12	Snubber interference from rear brackets by ITT Grinnel (BLNBLP8304)
438/83-26 439/83-21	Qualification of protective coatings (BLNASB8301)
438/83-33 439/83-29	Incorrect maximum pipe movements - TPIPE program (GENCEB8303)
438/83-41 439/83-35	Welds on vendor assemblies do not meet requirements (2389)
438/83-48 439/83-40	Heat tracing tape left on piping violates G-29M (2424)
438/83-15	Defective amplifiers in safety-related panels manufactured by EL-Tex (2815)

The inspectors reviewed the status of the following LIIs:

CDR No.	NCR No.	Title
438/84-57 439/84-53	BLNCEB8417	Incorrect response in analysis of Reactor Building spray piping

438/84-58	3675	Excessive wiring deficiencies in B&W supplied cabinets.

These items remain open.

No violations or deviations were identified.