



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION II  
101 MARIETTA STREET, N.W.  
ATLANTA, GEORGIA 30303

Report Nos. 50-438/82-28 and 50-439/82-28

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

Facility Name: Bellefonte

Docket Nos. 50-438 and 50-439

License Nos. CPPR-122 and CPPR-123

Inspection at Bellefonte site near Scottsboro, Alabama

Inspectors: *D.R. Quick for*  
J. D. Wilcox, Jr.

10/21/82  
Date Signed

Approved by: *D.R. Quick*  
D. R. Quick, Section Chief, Division of  
Project and Reactor Programs

10/21/82  
Date Signed

SUMMARY

Inspection on August 1 - September 13, 1982

Areas Inspected

This routine, announced inspection involved 136 inspector-hours on site in the areas of construction surveillance, Quality Control Investigation Report (QCIR) review, QA audit review, licensee identified items (Units 1 & 2), housekeeping, Nonconformance Condition Report (NCR) review, welding performance qualification record review, licensee action on previous inspection findings, work release review, compression fittings, chipping adjacent to seismic support, structural concrete at intake pumping station, QA site resolution of problems/deficiencies, hydrilla, stop work order, condensate pots, and pressure switches.

Results

Of the 17 areas inspected, no violations or deviations were identified in 15 areas; two items of noncompliance were found in two areas; (BOP Isolator Cabinet, Compression Fittings).

## DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*L. Cox, Project Manager
- \*W. Dahnke, Project Manager
- F. Gilbert, Construction Engineer
- \*G. Blackburn, General Construction Superintendent
- D. Freeman, Electrical Engineer Supervisor EEU
- T. Brothers, Hanger Engineer Supervisor
- \*F. Moses, Mechanical Engineer Supervisor
- H. Johnson, Welding Engineer Supervisor WEU
- D. Smith, Assistant Construction Engineer
- \*J. T. Walker, Assistant Construction Engineer
- F. Huffman, Assistant Construction Engineer
- J. Barnes, QA Unit Supervisor
- D. Bridges, Assistant Construction Engineer
- L. McCollum, Instrument Engineer Supervisor
- J. Olyniec, Civil Engineer Supervisor
- B. J. Thomas, Assistant Construction Engineer
- W. P. Chapley, IEU
- G. Greer, QA Unit
- \*K. Lawless, WEU
- E. Rose, QA Unit
- \*A. Richards, EEU QC Supervisor
- D. Gillies, Hanger Engineering Unit
- \*T. F. Newton, STCU Supervisor
- \*P. C. Mann, Nuclear Licensing Supervisor
- \*B. Sammons, Administrative Officer
- B. A. Fisher, QCRU Supervisor
- D. E. Nixon, MTU
- \*P. McGraw, Assistant Electrical Supervisor
- \*J. Cromer, QC Civil Supervisor
- \*D. C. Smith, Compliance Supervisor
- \*J. Brown, BW Construction
- \*T. McCollum, MEU Supervisor
- \*D. Thornton, Assistant MEU Supervisor
- \*R. Norris, Assistant OC and MEU Supervisor
- \*C. Adams, MEU QC Supervisor

Other licensee employees contacted included 10 construction craftsmen, 4 technicians, 2 mechanics, 2 security force members, and 10 office personnel.

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on September 9, 1982 with those persons indicated in paragraph 1 above.

### 3. Licensee Actions on Previous Inspection Findings

(Closed) Unresolved item 438, 439/81-31-10: "Rigid Metal Conduit Connections"

The inspector reviewed design information request DIR E-124 which addresses G-Spec G-40 interpretation of conduit installation - running threads. ENDES design engineering states in DIR E-124 that the practices used at Bellefonte are acceptable. This item 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 paragraphs 14, 15, 16, 19, 20 and 21.

### 5. Independent Inspection Effort - Construction Surveillance

The inspector spent most of his time in direct surveillance of hardware in the field which included the following areas:

(Unit 1 Reactor Building) Witnessed portions of erecting steel in annulus area; installing decay heat removal, chemical addition and boron recovery, component cooling water, spent fuel cooling, core flooding, makeup and purification and waste disposal piping; installing main steam and feedwater piping whip restraints; installing exposed conduit and associated supports; installing local instrument panels in the instrument room; pulling and terminating cables; tensioning upper steam generator supports; installing reactor coolant drains and vents; installing spray line and associated supports, and installing shoring and forming for secondary dome; installing motor stators on CRDM's on RPV Head; installing main fuel handling bridge crane; installing misc D-Ring platforms and installing shear bars on pressurizer.

(Unit 2 Reactor Building) Witnessed portions of installation of the large core flooding, decay heat removal, reactor building spray, waste disposal, auxiliary feedwater, makeup and purification, main steam, feedwater, component cooling water, and spent fuel cooling piping; installing electrical penetrations; installing HVAC ductwork and associated hangers, cable trays and supports, and exposed conduit and supports; installing pressurizer spray line and supports; performing fitup of supports, shear bar and miscellaneous hardware for the pressurizer; installing reactor coolant drains and vents; placing rebar and formwork for secondary wall; and chipping for reactor coolant system hot leg restraints.

(Auxiliary Building) Witnessed portions of installing chemical addition and boron recovery, component cooling, feedwater, main steam, auxiliary steam, auxiliary feedwater, spent fuel handling and reactor building spray piping; installing spent fuel cooling and decay heat removal hangers, piping and valves; installing pipe supports in Units 1 and 2 main steam valve room A;

pulling and terminating cables; installing radiation monitors; erecting fuel storage bridge in spent fuel pool; working on catwalks and concrete pours; and flushing spent fuel cooling.

(General) Witnessed portions of installing fire protection.

#### 6. Quality Control Investigation Report (QCIR) Review

The resident inspector reviewed the description and recommended disposition of the following QCIR's:

QCIR No.	Date	Title
23780	8/9/82	Hanger OKC-MPHG-0828 SHT 1R2-Bottom Rear Bracket
23898	8/7/82	Hanger IGC MPHG-0124 FR2 Location
23900	8/5/82	IVG-ECA2-124-B Wrong Size Lugs
*23987	8/6/82	Flush Procedures do not have Traceability

The QCIR identified with an (\*) was inadequately answered by start-up. This QCIR will be rewritten and reanswered.

The remaining QCIR's were handled in accordance with Bellefonte's Quality Control Procedures, BNP-QCP-10.26, Rev. 4.

No violations or deviations were identified.

#### 7. Nonconforming Condition Report (NCR) Review

The resident inspector reviewed the item description, noncompliance description, recommended disposition and action required to prevent recurrence for the following NCR's:

<u>NCR No.</u>	<u>Date</u>	<u>Title</u>
1966	8/25/82	DC Motor Starter - Delaval
1965	8/26/82	Cement Mortar lining of Unit 1 ERCW Closure Pieces
1934	8/5/82	Fire Protection Panel
1964	8/23/82	Six Arc Strikes on 3" Valve

These NCR's were handled in accordance with Bellefonte's Quality Control Procedure, BNP-QCP-10.4, Rev. 4.

No violations or deviations were identified.

#### 8. Work Release Review

The resident inspector reviewed the type of work, description, engineering unit approval, and QA records affected for the following work releases (WR):

<u>WR No.</u>	<u>Date</u>	<u>Title</u>
36362	8/23/82	Chip 2 each 3-inch dia. holes in wall
36364	9/3/82	Remove cable and rework conduit
36345	9/2/82	Weld temporary lug to whip restraint MK22-1
36330	9/1/82	Cut weld to remove pipe strap to allow pipe to be centered in sleeve

These work releases were handled in accordance with Bellefonte's Quality Control Procedures, BNP-QCP-10.6, Rev. 13.

#### 9. Licensee Identified Items (LII)

The resident inspector reviewed the status of the following LII's with site and ENDES personnel. The following licensee identified items have been reported to RII by TVA unless otherwise specified:

- a. (Open) CDR 438/82-52 "Failed Valve Control Unit by Dunhan-Bush" (NCR 1891)
- b. (Open) CDR 438/82-51; 439/82-46 "Deficiency in Under Voltage Protection During Accident" (BLN EEB 8205)
- c. (Open) CDR 438/82-50, 439/82-45 "Cutting of Rebar in Auxiliary Feedwater Pipe Trench Without Approval" (NCR 1872)
- d. (Open) CDR 438/82-49, 439/82-44 "Undersize Filet Welds Made Before Mid 1980" (NCR 1888)
- e. (Open) CDR 438/82-48, 439/82-43 "Deficient Steam Generator Support Bolts" (NCR 1887)
- f. (Open) CDR 438/82-54; 439/82-48 "Venting of High Point in ERCW System" (BLN QAB 8203)
- g. (Open) CDR 438/82-55, 439/82-49 "Conduit Loading on Annulus Framing in RB" (BLN QAB 8204)

- h. (Open) CDR 438/82-53, 439/82-47 "Valves Not Installed to Design Criteria" (BLN BLP 8222)
- i. (Open) CDR 438/82-56, 439/82-50 "Cable Bend Radius" (NCR 1889)
- j. (Closed) 438, 439/81-06-03 - Consolidated Control Corporation Field Buffer Cards (NCR 1296 - CDR 438/81-32, CDR 439/81-35): TVA submitted a revised final report on June 3, 1982. The resident inspector reviewed the corrective action specified on the revised final report and made a field check to verify completion of the work. The work was performed satisfactorily.
- k. (Closed) 438, 439/81-06-08 - Capacitors on Consolidated Control Corporation Field Buffer Cards (NCR 1309 - CDR 438, 439/81-12): TVA submitted a final report on April 2, 1982. The resident inspector reviewed the corrective action specified on the final report and made a field check to verify completion of the work. The work was performed satisfactorily.
- l. (Open) 438, 439/81-25-12 - BOP Isolator Cabinets (NCR 1472 - CDR-438/81-41, CDR 439/81-43): TVA submitted a final report on January 26, 1982. The resident inspector reviewed the corrective action specified on the final report and made a field check to verify completion of the work. This field check identified deficient conditions in some cabinets, the wiring harness does not have a  $\frac{1}{2}$  inch clearance between it and the leading front edge of the cabinet as stated in NCR 1472 and the jumper wire between TB2 and TB4 in cabinet ZIX-ISOL-262 was damaged. This condition was caused by the door latch interfering with the internal wiring and was not corrected when the terminal block was moved to eliminate the interference. NCR 1472 had been signed off by the QC Unit on June 21, 1982 stating that the work was completed satisfactorily; however, it was not. In addition a previous violation had been identified in this same area (Violation 438, 439/82-14-01). The corrective action taken and results achieved stated by TVA to Violation 438, 439/82-14-01 was as follows: all work performed on isolator cabinets was performed correctly including that work performed without written instructions in accordance with approved disposition on NCR 1472. As noted above the work was not performed correctly. This is identified as Violation 438, 439/82-28-01 "BOP Isolator Cabinets."

#### 10. Housekeeping

The resident inspector reviewed the following housekeeping deficiency reports for deficiencies identified and action taken to correct these deficiencies:

<u>Deficiency Report No.</u>	<u>Date</u>
774	8/25/82
775	8/26/82

These housekeeping inspections were handled in accordance with Bellefonte's Quality Control Procedure BNP-QCP-10.27, Rev. 6.

No violations or deviations were identified.

#### 11. Quality Audit Review

The resident inspector reviewed the following Quality Assurance Audits for accuracy and completeness:

<u>Audit No.</u>	<u>Title</u>	<u>No. of Deficiencies</u>
BN-C-82-06	Cadwelding	0
BN-E-82-10	Test Panel Fabrication Inspection	1

No violations or deviations were identified.

#### 12. Welding Performance Qualification Record

The resident inspector reviewed the following welding performance qualification records for completeness:

<u>Stamp No.</u>	<u>Welding Procedure No.</u>	<u>Test No.</u>	<u>Date</u>
FBSU	GT-11-0-1A Rev. 0	GT-6-0-1-L	8/24/82
FCIN	GT-11-0-1A Rev. 6	GT-6-0-1-L	8/25/82
FBWO	SM-11-B-3 Rev. 6	SM-4-B-3-H	8/25/82
FCKH	SM-11-B-3 Rev. 6	SM-4-B-3-H	8/26/82

These welding performance qualification records were handled in accordance with Bellefonte's Quality Control Procedure, BNP-QCP-10.24, Rev. 5.

No violations or deviations were identified.

#### 13. Compression Fittings

During the week of August 30, 1982 the resident inspector reviewed installation of compression fittings inside the intake structure. During this observation, the following deficient condition existed: The first compression fittings from panel 1IX-ILPK-005-B and 1IX-ILPK-006B had the tubing prepared improperly for make-up of the compression fittings. The tubing was apparently cut with a tube cutter and not deburred; BNP-QCP-4.3 and BNP-FCP-4.33 provide special guidance for preparation of tubing and do not allow stainless steel tubing to be cut and prepared by a tube cutter.

The compression fittings had been made up by the craft and had to be broken to identify the above condition. A total of seven tube ends were improperly



prepared. This is identified as Violation 50-438/82-28-08 "Compression Fittings".

14. Chipping Adjacent to Seismic Support

During plant surveillance in the week August 30, 1982, the resident inspector noted that an area had been chipped out at 8'3" east of the "Q" line reference and 9'-6" north of reference "A6" which penetrated the wall at elevation 657'-6." The area that was chipped is adjacent to the bearing plate of hanger ONB-MPHG-0383 and within the core affected area of the concrete expansion anchors (SSD) securing the plate to the wall. The chipping operation was completed by January 18, 1980; however, the pull test on this hanger was completed on August 28, 1979, prior to this chipping operation. Design Information Request H-24 addresses a situation similar to this condition. TVA needs to address this situation to ENDES to ensure that the chipping operations do not affect the integrity of the concrete expansion anchors. This is identified as Unresolved Item 438, 439/82-28-02 "Chipping Adjacent to Seismic Supports."

15. Structural Concrete at Intake Pumping Station

During the week of August 30, 1982, the resident inspector identified numerous small cracks on both faces of the east wall of the Intake Pump Station. These cracks are approximately 0.010" wide and vertical in appearance. Leeching is present at some cracks. TVA site generated QCIR 24987 and NCR 1969 to identify these conditions to ENDES for disposition. This is identified as Unresolved Item 438, 439/82-28-03 "Structural Concrete at Intake Pumping Station."

16. QA Site Resolution of Procedures/Deficiencies

During the review of QCIR 23987, which deals with flush procedures not having traceability, the resident inspector noted that a memo had been written by the site QA unit supervisor to the Construction Engineer pertaining to the subject addressed by QCIR 23987. This memo is dated August 12, 1982 and is identified as BQA 820812001, subject: "Resolution of Problems Pertaining to Construction Flush Packages". This memo states the STCU position and QAU practice does not appear acceptable in view of the following provision in CONST-QAP-11.1.R0: Paragraph 2.5A states: "The construction test results package shall include test data forms to record and document test results. The test data forms shall have provisions for the following:...4. Unique identifier of test and references to test procedure number and revision level."

Until the inspector determines why a nonconforming condition noted by the QAU was not identified as a deficiency rather than being handled by a memo, this matter is identified as Unresolved Item 438, 439/82-28-04 "QA Site Resolution of Problems/Deficiencies."



## 17. Hydrilla

The resident reviewed TVA News Release LG 2235.G1, mailed August 23, 1982, dealing with hydrilla found in a TVA lake. This news release states: The weed (hydrilla), which spreads rapidly and can form nearly impenetrable mats of stems and leaves at the water's surface, was found by a TVA boat crew on Thursday, August 19, growing on the right bank of Gunterville Reservoir near the Bellefonte Nuclear Plant. In addition, the pamphlet issued by TVA Division of Environmental Planning Water Quality and Ecology Branch under subtitle "Why is Hydrilla a Problem?" states that intake water systems can be clogged by the weed. TVA should observe this condition to ensure that all potential problems with hydrilla at the intake pumping station has/or will be addressed. This is identified as Inspector Followup Item 438, 439/82-28-05 "Hydrilla".

## 18. Stop Work Order

TVA initiated Stop Work Order SW 006 on August 26, 1982 during the inspection period. The description of activity stopped and reason: stopped modification of fire protection per ECN 1226 - Use of Improper Material. This order was handled in accordance with BNP.QCP-10.33 Rev. 4.

No violations or deviations were identified.

## 19. Condensate Pots

During the week of August 30, 1982, the resident inspector identified to IEU several pieces of SCH 80 3" ASME Section III Class 2 piping with apparent deficient conditions. This pipe was being used to fabricate condensate pots of the following UNIDs: 1SM-IPT-901 B-A, LPA-060 A.A; 1SM IPT-903D, LPA-190 A.D. The deficient conditions identified to IEU pertained to the following: wall thickness and surface condition of the received piping segment. IEU has generated QCIR 24929 to investigate these conditions and has requested that WEU send a sample to Singleton Labs. This item is identified as Unresolved Item 438/82-28-09 "Condensate Pots".

## 20. Pressure Switch

During the week of August 30, 1982, the resident inspector identified to IEU several examples of apparent deficient conditions on the mounting of numerous ASCO Tripoint pressure switches on local panels. These pressure switches are identified under contract No. 86243-2 on activity KEJ1 and KEJ2. The following deficient conditions were identified to IEU: Some switches are flush mounted and some switches are offset mounted. IEU has generated QCIR 24930 to investigate these conditions. This item is identified as Unresolved Item 438, 439/82-28-06 "Pressure Switch Mounting".

## 21. Electrical Panel

During the week of August 30, 1982, the resident inspector identified to EEU several examples of rusty electrical control panels, test panels, junction boxes, pull boxes, and manufacturing boxes. These examples are located in the intake pumping station. EEU has generated QCIR 25175 to investigate these conditons. In addition, this rusty condition in some cases exist inside the electrical boxes. This is identified as Unresolved Item 438, 439/82-28-07 "Rusty Electrical Boxes".