



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

Report Nos.: 50-390/87-11 and 50-391/87-11

Licensee: Tennessee Valley Authority
6N11 B Missionary Place
1101 Market Street
Chattanooga, TN 37402-2801

Docket Nos.: 50-390 and 50-391

License Nos.: CPPR-91 and CPPR-92

Facility Name: Watts Bar 1 and 2

Inspection Conducted: June 21, 1987 - August 2, 1987

Inspectors: *G. A. Walton for* *August 27, 1987*
G. A. Walton, Senior Resident Inspector
Construction Date Signed

P. G. Humphrey for *August 27, 1987*
P. G. Humphrey, Resident Inspector Date Signed

T. B. Powell for *August 27, 1987*
T. B. Powell, Resident Inspector Date Signed

Approved by: *S. A. Elrod* *Sept 2, 1987*
S. A. Elrod, Section Chief Date Signed
Division of TVA Projects

SUMMARY

Scope: This routine inspection was conducted in the areas of licensee action on inspector identified items, fire prevention and fire protection, preoperational test program implementation verification, testing of pipe support and restraint systems, qualifications of contract Quality Control (QC) inspectors, design changes and modifications and observation of electrical work.

Results: One Violation involving the failure to control lifted wires and cables in accordance with procedures or drawings, one Unresolved Item involving the certification of contract QC inspectors, and one Unresolved Item involving cleanliness of electrical equipment.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *G. Tcto, Site Director
- *D. M. Lake, Construction Project Manager
- R. A. Pedde, Unit 2 Nuclear Project Manager
- H. C. Johnson, WBN [Watts Bar Nuclear] Quality Assurance
- *J. A. McDonald, Licensing Manager
- H. B. Bounds, Engineering Project Manager
- *J. P. Mulkey, Quality Assurance Supervisor
- L. Peterson, Quality Control Supervisor
- *R. D. Tolley, Design Services Manager
- J. L. Collins, Mechanical Maintenance Supervisor
- M. K. Jones, Engineering Group Supervisor
- H. M. De Souza, Electrical Maintenance Supervisor
- R. D. Schulz, Licensing Supervisor
- *C. Riedl, Site Licensing
- *D. W. Stewart, Site Director's Office
- *J. W. Smith, Recovery Staff
- *T. Horst, Office of Nuclear Power
- *S. Stout, Division of Nuclear Engineering
- *J. W. Coan, Division of Nuclear Engineering
- *G. R. Owens, Division of Nuclear Engineering
- *A. E. Little, Division of Nuclear Engineering
- *G. W. Curtis, Division of Nuclear Engineering
- *G. R. Davis, Plant Manager's Office
- *G. Atwood, Division of Nuclear Engineering
- *J. Cruise, Site Licensing
- *J. Cromer, Plant Manager's Office

Other licensee employees contacted included engineers, technicians, nuclear power supervisors, and construction supervisors.

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on August 4, 1987, with those persons indicated by an asterisk in paragraph one above. The following new items were discussed:

- Unresolved Item (URI) 390,391/87-11-01, "Contract QC Inspector Certification". (Paragraph 9)
- Violation 390/87-11-02, "Failure to Control Lifted Cables and Wires Per Approved Procedures or Drawings". (Paragraph 10)

- URI 390/87-11-03, "Cleanliness of Electrical Equipment".
(Paragraph 11)

The licensee acknowledged the inspection findings with no dissenting comments. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection period.

3. Unresolved Items

Unresolved Items are matters about which more information is required to determine whether they are acceptable or may involve violations or deviations.

Two Unresolved Items are identified in this report and are discussed in paragraphs 9 and 11.

4. Licensee Action on Inspector Identified Items (92701)

- a. (Closed) Inspector Followup Item (IFI) 390,391/84-04-01, "Meteorological Equipment Concerns". The inspector reviewed the licensee's Administrative Instruction (AI) 2.1, Rev. 13, "Authorities and Responsibilities For Safe Operation and Shutdown", and determined the requirement was included in the 13th revision to check the control room recorders once per shift for proper operation. Therefore, this item is closed.
- b. (Closed) IFI 390, 391/84-04-02, " Meteorological Equipment Concerns". The inspector reviewed this open item which addressed proper maintenance and periodic operator checks of the meteorological recorders to insure that each was functioning properly. This review revealed that Administrative Instruction, AI-2.1, Rev. 13, had incorporated the requirement for routine operator checks of this instrumentation and the inspector noted that the Unit 1 recorder was operating with the correct chart paper installed. The WBN Unit 2 is in a construction status and installation of the meteorological recorder was not completed. However, this item will not remain open pending the construction completion of Unit 2. Instrumentation status is routinely checked during the preoperational phase and there is no extraordinary reason to specifically track this specific instrument for several years. This item is administratively closed for Unit 2.
- c. (Closed) Unresolved Item (URI) 390/85-21-05, "FSAR Changes On ERCW System". The inspector reviewed the issue that logic drawings indicated that the Essential Raw Cooling Water (ERCW) discharge valve on the "C" Component Cooling Water System (CCS) heat exchanger would align to the 35 percent open position upon a safety injection signal. The Final Safety Analysis Report (FSAR), Amendment 52, required this

valve to align to the full open position. Amendment 56, which has now been incorporated into the FSAR, requires this valve to align to the intended 35 percent position and is in agreement with the logic drawings. With respect to the processing of future design changes, Nuclear Engineering Procedure (NEP) 6.1, Rev. 0, includes the requirement to assure that the Safety Analysis Report and affected drawings or text are properly addressed prior to closure of design change packages. This issue is closed.

- d. (Closed) IFI 390/86-21-03, "Failure of Limitorque Motor Shafts". During Inspection 86-21, the problem with Limitorque valve actuator motor shafts was addressed and opened as an Inspector Followup Item. 10 CFR 50.55(e) Report WBRD-50-390/86-64 has been issued to resolve this problem. Since the 50.55(e) reports are also tracked, this IFI is administratively closed.
- e. (Closed) IFI 390,391/86-25-03, "Unit 1 Safety Related Electrical Cables In The Unprotected Areas Of Unit 2". Safety related electrical cables to Unit 1 equipment were previously identified in the unprotected areas of the Unit 2 building. A review during this inspection, of the licensee's "Vital Area Definition Report", classified as "Safeguards Information", revealed that the cable issue had been adequately addressed in that report. This issue is closed.
- f. (Closed) IFI 390/87-03-04, "Concrete Compression Testing". This item documented that, during Windsor Probe Testing for compression strength of in-place concrete, one test was conducted within 12 inches of an existing anchor. Procedure WP-19, "Nondestructive Testing For Inplace Concrete" specified that probe testing would not be performed within a 12-inch boundary of existing anchors embedded in concrete. After this discrepancy was discovered, the licensee issued Problem Identification Report (PIR) WBN 8717 documenting the finding.

Department of Nuclear Engineering (DNE) evaluated the condition and determined that concrete damage was minor for the affected zone, which was located outside the pull-out cone area, and resulted in no strength loss to the existing anchor.

The PIR was closed on May 22, 1987, with no further corrective actions required. This item is closed.

Within this area inspected, no violations or deviations were identified.

5. Fire Prevention and Fire Protection - Unit 2 (42051)

During plant tours, the inspectors conducted observations of fire prevention and protection activities in areas containing combustible materials where ignition of these materials could damage safety-related structures, systems or components. The observations included verification that applicable requirements of Administrative Instruction (AI) 9.9,

Rev. 17, "Torch Cutting, Welding, and Open Flame Work Permit", Security Procedure 2, Rev. 26, "Fire Protection Plan", AI 1.8, Rev. 10, "Plant Housekeeping" and WBNP Quality Control Instruction (QCI) 1.36, Rev. 13, "Storage and Housekeeping" were being implemented with regards to fire prevention and protection.

No violations or deviations were identified in this area.

6. Preoperational Test Program Implementation Verification - Unit 1 (71302)

The inspectors conducted routine tours of the facility to make an independent assessment of equipment conditions, plant conditions, security, and adherence to regulatory requirements. The tours included:

- A general observation of plant areas to determine if fire hazards existed.
- Observation of other activities in progress, e.g., maintenance and preoperational testing, to determine if they were being conducted in accordance with approved procedures.
- An observation of other activities which could damage installed equipment or instrumentation.
- Evaluation of system cleanliness controls.
- Review of logs maintained by test groups to identify problems that may be appropriate for additional followup.

Within this area no violations or deviations were identified.

7. Testing of Pipe Supports and Restraint Systems - Unit 1 (70370C)

The inspector toured areas of the Unit 1 auxiliary building and reactor building. Numerous snubbers and restraints were observed. Visual examinations were conducted to check for deterioration and physical damage of mechanical snubbers. Visual examinations were also conducted to check for damage of base support plates, fasteners, locknuts, brackets, and clamps associated with these installed pipe supports.

Within this area no violations or deviations were identified.

8. Status of Plant Issues (92705)

- a. During this inspection period, the inspector reviewed the listing of open Construction Deviation Reports (CDR), Non-Conformance Reports (NCR), Conditions Adverse to Quality Reports (CAQR) (which replaced the NCR reports) and the open items associated with Nuclear Regulatory Commission Inspection and Enforcement Bulletins and Inspector Findings. The status of NCRs and CAQRs were reviewed with the Site Quality Manager and the following statistical data was generated. The remaining areas of data were obtained from the open items listings. However, the numbers listed below are approximate based on the on-going activities involved in each of these areas.

<u>Open Items</u>	<u>Total</u>	<u>Unit 1</u>	<u>Unit 2</u>
Old Program (NCR)	1256	*	*
New Program (CAQR)	506	*	*
Construction Deficiency Report	393	164	229
NRC Opened Items (Violations, IFI, URI, Bulletins)	458	240	218

*Numbers not available by a unit breakdown.

b. The Employee Concern Programs (ECP) were reviewed by the Inspector. This area is divided into two programs:

- (1) The OLD program involves those concerns expressed to the QTC Company and involved approximately 5448 concerns. These have been divided into 107 subcategories for review and investigation. Results of the findings are finalized into report form and any resulting work required to satisfy the condition is added to the Licensee's Tracking and Reporting of Open Items (TROI) Reporting System.

Draft reports for each of the 107 categories are essentially completed and the ECP effort is expected to be completed by November, 1987.

- (2) The NEW program is active in receiving and processing current concerns. At the beginning of this reporting period, the New Employees Concern Task Group reported receiving a total of 286 concerns (note: this number did not include an additional 47 submitted to the TVA Inspector General). One hundred forty-six of the 286 concerns have been resolved.

Within this area no violations or deviations were identified.

9. Allegations (92705B)

Allegation OSP-87-A-0053 "Qualification of Contract QC Inspectors".

Concern:

The following non-conforming situations existed within the QC organization:

1. Contract personnel were recommended for certification by a Quality Control (QC) supervisor who did not have this authority.
2. A contract mechanical inspector was sent to Sequoyah in December 1986, to perform instrument line inspections, which were the same type of inspections being performed at Watts Bar. Sequoyah management would not allow the inspector to inspect because of not

being certified. Upon return to Watts Bar, inspection activities were resumed. On April 30, 1987, the inspector's mechanical inspector certification expired. However, the inspector continued to inspect at the Watts Bar plant.

3. Two Condition Adverse To Quality Reports (CAQR) had been submitted to management. These were returned with a verbal message that additional information was needed to process the reports. When asked what information was needed, the foreman indicated that he knew of nothing else that was needed. This was perceived as an action to "stall" and discourage the submittal of these CAQRs.

Discussion:

The issue of the two CAQRs was discussed with the site CAQR coordinator. It was shown that the two CAQRs (WBP870572 and WBP870573) had been appropriately processed in accordance with the "Nuclear Quality Assurance Manual" (NQAM), Part I, Section 2.16, Rev. 3, "Corrective Action". The management member who had requested the additional information stated that more information was desired to establish why the problem had occurred and to obtain recommended corrective action prior to evaluating the condition.

Training and certification records were reviewed for the contract inspector in question and it was determined that the certifications did expire on April 30, 1987. QC inspection logs document that inspections after the certifications expired were performed by that inspector. The licensee had documented this condition under CAQR WBP870572 and the inspector has been properly recertified and returned to inspection duties. This subject is further discussed in the conclusions paragraph below.

The contract inspector was assigned to Sequoyah in December 1986 to perform special walkdowns. However, the inspector was not utilized at Sequoyah as a result of the determination, based on a time element, that the qualification process for the special walkdowns was not justified.

A discussion was held with QA management regarding the alleged questionable waiver to allow the individual to inspect in other than mechanical areas. The intent of the waiver was to certify the qualified mechanical inspector in limited portions of the the electrical area dealing with mechanical aspects as follows:

- a. Instrumentation Supports
- b. Instrument Equipment Installation
- c. Instrument Line Slope
- d. Instrument Tube Bending Qualification
- e. Sensing Line Flexibility
- f. Flexible Metal Hose Assemblies

QA management stated that their staff had reorganized at the time of the waiver and the procedures and forms being used (NQAM, Part II, Section 5.3A, Rev. 2), had not been changed to reflect the new

organization. The current procedure, NQAM, Part II, Section 5.3A, Rev. 2, requires that waivers be signed by the Site Quality Manager (SQM) for TVA personnel and by the Technical Support Branch Chief for contract inspectors.

Conclusions:

The QC supervisor signed his recommendation for the waiver in a block designated for a Field Quality Engineer (QE) section supervisor recommendation. The allegation is therefore substantiated. On the date of signing the waiver, there was no one officially designated as a Field Quality Engineer Section supervisor. This administrative non-conformance has no safety significance and is considered closed.

The allegation that two CAQRs were not being processed was reviewed and both were found to have been processed within the required time-frame. The allegation is not substantiated.

The allegation that the contract QC inspector performed inspections after expiration of his certifications is substantiated. A Notice of Violation is not being issued at this time because the violation was licensee identified and corrective action is ongoing. This will be identified as Unresolved Item 390, 191/87-11-01, "Contract QC Inspector Certification", pending review of corrective action performed per CAQR WBP870572.

10. Design Changes and Modifications (35744B)

Numerous cables and wires were found lifted in Unit 1 control room panels and auxiliary instrument room panels without tags to indicate that the cables and wires were being controlled. This issue was discussed with the licensee's management. The licensee investigated the issue and identified additional problems with lifted cables and wires as follows:

- a. Numerous cables had been spared but not entered into the spare cable program in accordance with Engineering Procedure, WBEP 5.31, Rev. 0, "Cable Record Development and Issue". Modification Procedure, M&AI-3, Rev. 7, "Installation and Inspection of Insulated Control, Signal, and Power Cables" and Construction Standard Operating Procedure (SOP) 47, Rev. 0, "Spare Cable Identification and Documentation", both require that cables spared or abandoned be reported to engineering for entry into the cable program as spares. The loss of control and documentation of spare cables is significant and would result in lack of consideration of these cables when calculating conduit and cable tray fill. At the conclusion of the licensee's investigation, CAQR WBP 870632 was issued to document this problem.

The licensee's review showed that SOP 47, Rev. 0, was inadequate for control of cables in a category 1 structure since SOP 47 was only administrative policy and not part of the Quality Program. CAQR WBQ 870694 was issued to document this problem.

- b. Cable 1-3FP-211-1101-B was installed as a three-conductor cable but drawings 45W1677-5 and 45W1677-7 indicate it is a two-conductor cable. CAQR WBP 0870634 was issued to document this problem.
- c. Four unterminated wires labeled F6-B2, F6-L2, F6-H2, and F6-E2 inside Unit 1 Panel 1-R-78 were identified. These wires were not shown on as-constructed drawing 45N1693-3, Rev. 23 LL, "Connection Diagram for Panel 1-R-78", and were not controlled as temporary alterations per AI-3.15, Rev. 16, "Temporary Alteration". CAQR WBP870634 was issued to document this problem.

10 CFR 50, Appendix B, Criterion V, as implemented by TVA's Quality Assurance (QA) Topical Report, TVA-TR75-1A, Rev. 9, Paragraphs 17.1.5 and 17.2.5, both titled, "Instructions, Procedures, and Drawings", requires that activities affecting quality shall be accomplished in accordance with instructions, procedures, or drawings.

These problems with lifted cables and wires are identified as Violation 390/87-11-02, "Failure to Control Lifted Cables and Wires Per Approved Procedures or Drawings".

11. Electrical - Observation of Work (51053)

The inspector inspected junction boxes and noted a light accumulation of dirt and debris in 1-JB-292-1407-A, 1-JB-292-1408-B, 1-JB-292-1246-A, 1-JB-292-1358-B and 0-JB-292-2340-A. It is necessary to maintain safety related electrical equipment clean in order that grounds (which could develop from the dirt and debris) will not impair the intended function of the system. This problem was discussed with the plant Electrical Maintenance supervisor who indicated the intention to revise procedures to require cleaning of the interior of equipment, at the completion of work packages, before returning the equipment to service. The inspector did not notice any electrical equipment with an intolerable amount of dirt or debris. As long as the procedures are changed, a degradation of plant equipment can be avoided. This issue is identified as Unresolved Item 390/87-11-C3, "Cleanliness of Electrical Equipment", pending review of revised procedures.

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