



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

Report Nos.: 50-390/84-16 and 50-391/84-13

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

Docket Nos.: 50-390 and 50-391

License Nos.: CPPR-91 and CPPR-92

Facility Name: Watts Bar

Inspection at Watts Bar site near Spring City, Tennessee

Inspector: J. R. Harris 3/12/84  
Date Signed

Approved by: T. E. Conlon 3/12/84  
Date Signed  
T. E. Conlon, Section Chief  
Engineering Program Branch  
Division of Engineering and Operational Programs

SUMMARY

Inspection on February 28 to March 2, 1984

Areas Inspected

This routine, unannounced inspection involved 26 inspector-hours on site in the areas of structural concrete, structural backfill, previously identified enforcement items, and licensee identified items.

Results

Of the four areas inspected, no violations or deviations were identified.

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## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- G. Wadewitz, Construction Project Manager
- \*S. Johnson, Quality Manager
- \*J. Coffield, Assistant Quality Manager
- \*F. Smith, Assistant Construction Engineer
- \*T. Hayes, Nuclear Licensing Supervisor
- \*C. Hutzler, Hanger Engineering Unit Engineer
- \*J. W. Coan, Project Engineer, OEDC
- \*C. T. Tinsley, QA Evaluator
- \*J. L. Walton, QA Evaluator
- S. Woodlee, Civil QA Inspector
- D. R. Finney, Materials Engineer

#### NRC Resident Inspector

W. B. Swan

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on March 2, 1984, with those persons indicated in paragraph 1 above. The licensee acknowledged the inspection findings. The following item was opened.

- Inspector Followup Item 390/84-16-01 and 391/84-13-01, Design Basis for Dimensional Tolerances on Structural Steel Plates.

### 3. Licensee Action on Previous Enforcement Matters

- a. (Closed) Violation 390/83-41-01 and 391/83-30-01, Failure to Follow Quality Control Instructions on Earthfill Testing for Underground Barriers for Potential Liquefaction. The inspector examined the licensee's response and implementation of the response dated December 6, 1983. Instructions for QC inspectors have been revised to clarify inspection requirements. Documentation has been corrected and QC inspectors have been given additional training in earthfill placement and inspection requirements. Examination of earthfill data showed that earthfill operations meet design requirements. This item is closed.
- b. (Closed) Unresolved item 390/83-41-02 and 391/83-30-02, Verification of Correct Density in 100 Percent Compaction Zone. Drawing number 10N213-2 requires that earthfill shall be compacted to 100 percent of

maximum dry density to a minimum depth of 10 feet above the bottom of trench A and 5 feet above the bottom of trench B. Records were not available to verify that the compaction requirements were met; however, the inspector reviewed cross sections prepared by the licensee which verified that the compaction requirements were met. This item is closed.

#### 4. Unresolved Items

Unresolved items were not identified during this inspection.

#### 5. Independent Inspection

This inspector examined the following:

- a. Completed backfill in trench A
- b. Soils and concrete testing laboratory and concrete test cylinder curing room
- c. Concrete repair in the auxiliary building at elevation 736 feet and 6 feet west of A5 line
- d. Concrete repair in the Unit 1 north valve room at elevation 754

Within the areas examined no violations or deviations were identified.

#### 6. Licensed Identified Items (10 CFR.55(e))

(Open) Item 390/84-02 and 391/84-01 - Live Loads Not Considered in Design of Concrete Partition Walls. TVA has determined that some partition walls may not have the capacity to support any additional loads. If attachments have been made to these walls, structural restraints will be required. It has also been determined that some partition walls do not have the capacity to seismically support the various components which are presently attached to them. These walls will require structural restraint. TVA is continuing their evaluation and will submit their next report to NRC by March 1, 1984.

(Open) Item 390/81-71 and 391/81-67 - Qualification of Epoxy Grout for Safety-Related Applications. Epoxy grout was specified on design drawings at specific anchor bolt locations inside containment where temperatures may exceed 120°F. Epoxy grout may have its load-carrying capabilities reduced at temperatures above 120°F. Also the epoxy grout has not been qualified to a radiation environment.

The inspector examined the licensees final report for Unit 1 dated September 13, 1983, and the tenth interim report for Unit 2 dated February 1, 1984. Testing performed on epoxy grouts used for grouted anchors showed that between temperatures of 120°F to 160°F the capability of the epoxy

grouts would vary from 20 to 40 percent of their normal capacity. Thermal model studies showed that the worst case situation would raise the temperature of the epoxy to about 160°F. All use of epoxy grout has been halted on safety-related systems. Specification G-32, "Bolt Anchors Set in Hardened Concrete," and "Civil Design Standard," DSC-1.7.1 have been revised to preclude the use of epoxy-grouted anchors in safety-related applications. Engineering design has identified 64 supports inside containment for which epoxy grout was specified. Forty of these supports were found to be inadequate. Corrective actions such as replacement of epoxy grouted anchors with cement grouted anchors or additional supports were recommended for the inadequate supports and revised drawings were issued for the modifications. The inspector examined revisions on drawing numbers 1-87-108R904, 1-68-432R903, 1-63-007R906, 103A-285R907, 103A-328R903, 1-103A-502R905 and 101A-380R908 and completed support modifications shown by the drawings. However, the inspector could not verify that the epoxy grouted anchors had been replaced by cement grouted anchors as the support plates were covering the grouted surfaces. Also, documentation was not available to verify completion of the replacement of epoxy grouted anchors with cement grouted anchors during the inspection. This item remains open pending NRC review of documentation verifying completion of the replacement of epoxy grouted anchors with cement grouted anchors.

#### 7. Inspector Followup Item

(Open) Inspector Followup Item 390/84-16-01 and 391/84-13-01, Design Basis for Dimensional Tolerances on Structural Steel Plates. TVA Specification G43 and QC Procedures allow tolerances in structural steel plates up to  $\pm 1\frac{1}{2}$  inches, depending on the size of the plate. The American Institute of Steel Construction Manual allows only a  $\frac{1}{4}$  inch tolerance. Dimensional variations up to  $1\frac{1}{2}$  inches possibly could have a significant affect on the load carrying capability of the steel plates. This item was identified in TVA Deviation Report No. C03-S-84-0055-001 on February 25, 1984. The item was reported to NRC Region II as a potentially reportable item on February 24, 1984.

This item remains open as an inspector followup item pending NRC examination of the licensee's resolution of Deviation Report C03-S-84-0055-001.