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TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

5N 157B Lookout Place

WBRD-50-391/86-28

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U.S. Nuclear Regulatory Commission  
Region II  
Attention: Dr. J. Nelson Grace, Regional Administrator  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30323

Dear Dr. Grace:

WATTS BAR NUCLEAR PLANT UNIT 2 - INADEQUATE CONSTRUCTION WORK CONTROL -  
WBRD-50-391/86-28 - FINAL REPORT

The subject deficiency was initially reported to NRC-Region II Inspector Bob Carroll on February 11, 1986 in accordance with 10 CFR 50.55(e) as SCR WBN 6497-S. Interim reports were submitted on March 13 and June 27, 1986. Enclosed is our final report.

If there are any questions, please get in touch with J. A. McDonald at (615) 365-8527.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

*R. Gridley*  
R. Gridley, Director  
Nuclear Safety and Licensing

Enclosure

cc (Enclosure):

Mr. James Taylor, Director  
Office of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

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ENCLOSURE  
WATTS BAR NUCLEAR PLANT UNIT 2  
INADEQUATE CONSTRUCTION WORK CONTROL  
WBRD-50-391/86-28  
SCR WBN 6497-S  
10 CFR 50.55(e)  
FINAL REPORT

Description of Deficiency

Several nonconforming condition reports (NCRs) have been issued for Watts Bar Nuclear Plant (WBN) identifying various deficiencies in installed structures, systems, and components (SSCs). The affected SSCs have previously been inspected and documented as acceptable (i.e., finalized). A review of these NCRs resulted in the identification of a generic deficiency in the program for control of construction work at WBN. As a result, TVA issued significant condition report (SCR) WBN 6497-S.

There were three processes in the program used to control work at WBN. Workplans and work packages were used to control work on transferred and non-transferred uniquely identified permanent plant features, respectively. Additionally, the work release process was intended to control work activities that would not change the configuration of any permanent plant equipment. The original scope of the work release process limited the work performed by use of a work release to the repair, chipping, and drilling of concrete, and temporarily attaching to or supporting construction loads from permanent plant features.

Over a period of time, modifications and revisions to the original work control program, particularly in the work release process, resulted in work being inadequately controlled. This condition subsequently resulted in discrepancies in affected as-constructed drawings, in the records accountability program, and in the documentation of previously completed work. This was primarily caused by an expansion of the scope of work releases to include rework, or modifications to uniquely identified permanent plant features which were finalized. Consequently, the inadequate control of work releases, particularly in the area classified as rework, which resulted in the unauthorized rework, removal, or alteration of finalized features is considered to be the root cause of this deficiency.

Safety Implications

The subject deficiency resulted in an indeterminate status of affected SSCs. An indeterminate status of safety-related SSCs rendered questionable the ability of the plant to respond as designed to both normal and abnormal operating events. As such, the subject deficiency could have adversely affected the safety of operations of the plant.

Corrective Action

TVA performed a review of the work control program at WBN to determine if program changes were required. The review resulted in the various procedures

for work control being consolidated to ensure a more effective means of controlling work. This was accomplished by the issuance of WBN quality control instruction (QCI)-1.60, "Work Control." All affected personnel have been trained to QCI-1.60.

To date, TVA has reviewed 9,203 (of approximately 9,221) work releases that involved rework. Approximately 2,591 (28 percent) of these work releases were found to be not in compliance with the procedural requirement of WBN QCI-1.07, "Work Release," section 6.1.1.4, which states: "Specifies in the space provided on the release any inspections, layout requirements, procedures, or precautions necessary to perform the work safely and accurately. Inspections on the release must refer to the appropriate Quality Control Procedure (QCP), and the documentation is in accordance with the referenced QCP." A review of 38,589 documents associated with these work releases identified that approximately 37,204 documents were correctly updated (rework was inspected and documented). Thus, approximately three percent of the reviewed documents were not in compliance with applicable requirements.

Deficiencies identified during this review are being corrected by the following methods:

1. Documents that are no longer valid (i.e., the item has been deleted) will be removed from the Document Control Unit (DCU) vault files in accordance with WBN QCI-1.08, "Quality Assurance Records."
2. A list of uniquely identified SSCs with inspection documentation deficiencies identified by test number/test level, will be compiled and issued to the responsible engineering unit (REU) for correction.
3. Any required rework to install SSCs will be implemented by the REU in accordance with QCI-1.60. If applicable, separate nonconformance reports will be initiated and resolved for individual hardware deficiencies.
4. Test level update, test cards/sheets and inspection requests will be initiated by the REU in accordance with WBN QCI-1.08 and WBN QCI-1.02, "Control of Nonconforming Items."

The new program for work control, per WBN QCI-1.60, contains provisions which emphasize the allowable scope of magnitude of work that may be controlled in a single workplan. This "workplan" replaces the previous workplan and work package. Mandatory hold points to ensure accuracy of the records accountability program are included and the use of work releases for rework and modifications has been eliminated. The requirements for as-constructing drawings have been separated from the work control program to provide for better control of this activity. These corrective actions will prevent recurrence of this deficiency.

All corrective actions will be completed by initial fuel loading for WBN unit 2.

This deficiency was reviewed for applicability and was found to not represent a significant condition for unit 1.