



Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381

DEC 20 1991

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WBRD-50-390/91-22

WBRD-50-391/91-22

10 CFR 50.55(e)

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

Gentlemen:

In the Matter of the Application of )  
Tennessee Valley Authority ) Docket Nos. 50-390  
50-391

WATTS BAR NUCLEAR PLANT (WBN) UNITS 1 AND 2 - DEFICIENCIES WITH HEATING,  
VENTILATION, AND AIR CONDITIONING (HVAC) DUCT SUPPORTS -  
WBRD-50-390, 391/91-22 - REVISED FINAL REPORT

Reference: Watts Bar Nuclear Plant Unit 1 - Deficiencies with Heating,  
Ventilating, and Air Conditioning (HVAC) Duct Supports -  
Final Report - June 4, 1991

The subject deficiency was initially reported to NRC Inspector  
Ken Barr on May 3, 1991, for Unit 1 and on December 5, 1991, for Unit 2,  
in accordance with 10 CFR 50.55(e) as Significant Corrective Action  
Reports (SCARs) WBN 870316 SCA and WBSCA 910279 (Units 1 and 2,  
respectively).

WBN 870316 SCA represented the consolidation of numerous related HVAC  
discrepancies for Unit 1 and Common systems. It was initially reviewed  
for reportability in July 1988. It was determined then to be not  
reportable based upon available information and the fact that identified  
discrepancies would not likely affect the ability of the subject supports  
to perform their intended design functions. An update of this  
reportability determination was performed upon completion of the HVAC  
corrective action program walkdowns (May 3, 1991). The referenced final  
report summarized the results of this effort.

WBSCA 910279 was initiated to address these same HVAC issues for WBN  
Unit 2. The enclosed 10 CFR 50.55(e) revised final report augments that  
submitted for Unit 1 and Common and addresses issue resolution for Unit 2.

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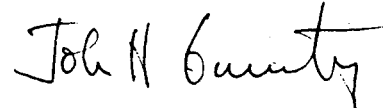
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Commitments contained in this letter are summarized in Enclosure 2.  
If there are any questions, please telephone P. L. Pace at (615) 365-1824.

Sincerely,



John H. Garrity

Enclosures

cc (Enclosures):

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ENCLOSURE 1

WATTS BAR NUCLEAR PLANT (WBN) UNITS 1 AND 2  
DEFICIENCIES WITH HVAC DUCT SUPPORTS  
SIGNIFICANT CORRECTIVE ACTION REPORTS  
(SCARs) WBN 870316 SCA AND WBSA 910279  
10 CFR 50.55(e)

REVISED FINAL REPORT

DESCRIPTION OF DEFICIENCY

Various discrepancies for heating, ventilating, and air conditioning (HVAC) duct supports were originally identified at WBN by the following documents:

- NRC Violation 390, 391/87-07-01
- Condition Adverse to Quality Reports WBN 870308 and WBN 870316
- Significant Condition Report W-580-PS
- Nonconformance Report W-580-P

In general, these documents identified specific construction discrepancies between the design records and installed configurations and between installed configurations and inspection documentation. Initial reviews concluded that these types of discrepancies were to be evaluated for widespread occurrence throughout the HVAC duct support population.

Examples of the discrepancies identified for some of the HVAC supports include:

- Excessive member lengths
- Excessive rivet spacings for duct-to-support connections
- Attachment of a conduit support to a duct support without supporting documentation
- Some support elements not installed as detailed by the drawings
- Excessive baseplate gaps
- Bent rods
- Loose nuts
- Edge distance of anchors on baseplates not as detailed on design documents
- Incorrect support identifications

Because of issue similarities, these deficiencies were consolidated under one SCAR for resolution (WBN 870316 SCA). Subsequently, SCAR WBSA 910279 was written to address these same issues for Watts Bar Unit 2.

ROOT CAUSE

A root cause analysis performed for this condition determined that the problems were basically attributable to instructions which were ambiguous and did not provide sufficient step-by-step guidance. Also, the problems were attributed to carelessness and inattention to detail by the support inspectors.

### SAFETY IMPLICATIONS

Some of the identified discrepancies will result in reduced design margins if left uncorrected. While the exceedance of these design allowables does not necessarily mean failure is likely, it cannot presently be concluded that none of the discrepancies would result in failure. An HVAC support failure could result in a breach of the duct pressure boundary and failure of the duct to perform its intended safety function.

### CORRECTIVE ACTION

Engineering specifications for construction have been upgraded to provide improved clarity and guidance for the construction of HVAC duct supports. Specifically, general engineering specification G-89 has been upgraded, and site-specific engineering specification N3C-942 has been issued.

The types of discrepant conditions recorded in the SCAR are representative of a variety of construction discrepancies encompassed by the Unit 1 and Common HVAC Corrective Action Program (CAP) Plan. The evaluation of Unit 2 HVAC duct supports will utilize a similar methodology. Accordingly, the Unit 2 safety-related duct supports will be reviewed by walkthroughs for potentially significant configuration discrepancies. Walkdown data will also be obtained, as necessary, for critical case evaluations. These evaluations will serve as the basis for accept-as-is or modify/fix dispositions for Unit 2 safety-related duct supports. Generic or specific designs will be generated to implement modifications for fixes as necessary.

The above commitments were captured generically by the Unit 1 and Common CAP. Accordingly, no new actions for Unit 1 are contained in this submittal.

Unit 1 and Common corrective actions will be completed concurrently with the CAP implementation schedule. Unit 2 corrective actions will be completed by Unit 2 fuel load.

The HVAC CAP was formally submitted for Unit 1 and Common on November 18, 1988. NRC's programmatic acceptance was summarized in the safety evaluation dated October 27, 1989. Additionally, implementation audits of the CAP process have been initiated, as discussed in NRC Inspection Reports 50-390/89-14 and 50-391/89-14.

ENCLOSURE 2

WRD 50-390, 391/91-22  
REVISED FINAL REPORT

LIST OF COMMITMENTS

1. The evaluations of Unit 2 heating, ventilating, and air conditioning (HVAC) duct supports will utilize methodology similar to that described in the Unit 1 and Common HVAC Corrective Action Program Plan.
2. Unit 2 HVAC support corrective actions will be completed by Unit 2 fuel load.