

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

August 12, 1985

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WBRD-50-390/85-23
WBRD-50-391/85-21

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

Dear Dr. Grace:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - HEATING, VENTILATING, AND
AIR-CONDITIONING DUCT INSULATION HEAVIER THAN WEIGHT USED IN SUPPORT ANALYSIS
- WBRD-50-390/85-23, WBRD-50-391/85-21 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector
Al Ignatonis on July 15, 1985 in accordance with 10 CFR 50.55(e) as NCR
WBN MEB 8517. Enclosed is our final report.

If you have any questions concerning this matter, please get in touch with
R. H. Shell at FTS 858-2688.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

J. A. Homer
J. W. Hufham, Manager
Licensing and Risk Protection

Enclosure

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

Records Center (Enclosure)
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, Georgia 30339

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 HEATING, VENTILATING, AND AIR-CONDITIONING DUCT INSULATION HEAVIER THAN WEIGHTS USED IN SUPPORT ANALYSIS WBRD-50-390/85-23, WBRD-50-391/85-21

NCR WBN MEB 8517
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

Through a generic investigation for a TVA audit finding on Bellefonte Nuclear Plant (BLN) concerning inadequate control of contract drawings, TVA identified a problem with the weight of the heating, ventilating, and air-conditioning (HVAC) duct insulation used with some of the ducts in the control and reactor buildings. The insulation weight used for analysis and location of typical supports was a maximum of 1.5 lb/ft², but TVA has found that in some cases the insulation weighs 3 lb/ft² in the reactor building and 2.7 lb/ft² in the control building.

This problem originally occurred in the 1974-1975 time period when the source of the support design information (design criteria WB-DC-40-31.8) and the contracts for duct and insulation were first prepared. In preparing WB-DC-40-31.8, TVA personnel failed to reflect the actual weight of the insulation purchased on the contracts.

Safety Implications

Reanalysis of the subject hangers revealed that there was sufficient conservatism in the design of the reactor building hangers such that they adequately support the duct even with the heavier insulation. A portion of the control building duct is not adequate and these supports could fail in the event of an accident, thereby causing the duct to collapse. This could cause safety-related instruments or controls in the main control room (MCR) to fail or to function improperly because of overheating. In addition, the MCR HVAC system would not be able to maintain a positive pressure in all areas of the MCR Habitability System.

Corrective Action

TVA will add four duct hangers to the existing ductwork by September 1, 1985, through engineering change notice (ECN) 5827 and will modify 11 other hangers through its variance program. Also under ECN 5827, a new series of drawings, the 47W900-600 series, are being issued and will detail the location and weight of duct insulation for all seismically supported duct systems. This action, as well as a revision to WB-DC-40-31.8, to reference the new duct insulation drawings will prevent a recurrence of this problem. These new drawings and the design criteria revision will be completed by October 1, 1985.