TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

April 11, 1985

WBRD-50-390/85-16
WBRD-50-391/85-17

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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 - REDUNDANT TRIPPING DEVICES FOR CONTAINMENT PENETRATION CIRCUITS NOT PROVIDED - WBRD-50-390/85-16 AND WBRD-50-391/85-17 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector Al Ignatonis on April 5, 1985 in accordance with 10 CFR 50.55(e) as NCR WBN EEB 8507. Enclosed is our final report.

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

Very truly yours,

TENNESSEE VALLEY AUTHORITY

J. W. Hufham, Manager
Licensing and Regulations

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
REDUNDANT TRIPPING DEVICES FOR CONTAINMENT PENETRATION CIRCUITS NOT PROVIDED
WBRD-50-390/85-16 AND WBRD-50-391/85-17
NCR WBN EEB 8507
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

Redundant tripping devices were not provided for control power circuits for valves FSV-43-251, -288, -310, and -319 for Watts Bar Nuclear Plant (WBN). As a result, there is not adequate overcurrent/short-circuit protection for the containment penetrations in which the circuits are located (penetrations 27, 36, and 52). The redundant tripping devices are requirements of Regulatory Guide 1.63.

TVA has determined that this deficiency was the result of a design error resulting from inadequate design criteria. WBN Design Criteria WB-DC-30-5 included the requirements of Regulatory Guide 1.63 by reference. However, WB-DC-30-5 did not adequately clarify and interpret those requirements into specific criteria for the design of electrical penetration circuits for WBN.

A similar deficiency occurred previously and was documented as nonconformance report (NCR) WBN EEB 8111 (WBRD-50-390/82-07). This was reported to the NRC in L. M. Mills' letter to James P. O'Reilly dated November 17, 1982. The subject deficiency (NCR WBN EEB 8507) occurred during the interim between the issuance of NCR WBN EEB 8111 and the implementation of corrective action to prevent recurrence for NCR WBN EEB 8111.

Safety Implications

Without adequate, redundant tripping devices, a single random failure of a circuit overload protection device could result in an excessive rise in cable temperature due to a short-circuit or overcurrent condition. This excessive heat could damage the affected containment penetration and, subsequently, could result in a loss of containment integrity. This could adversely affect the safe operation of the plant.

Corrective Action

TVA will provide redundant tripping devices for affected circuits to adequately protect containment penetrations 27, 36, and 52. Engineering change notices (ECN) 5601 and 5602 have been issued to accomplish the necessary work for units 1 and 2, respectively.

Design input memorandum (DIM) WB-DC-30-5-2 was issued by TVA on October 18, 1982, as a part of the corrective action taken for NCR WBN EEB 8111. This DIM was issued to clarify the interpretation of the requirements of Regulatory Guide 1.63 and to ensure adequate containment electrical penetration protection. No deficiencies of the subject type have occurred since DIM-WB-DC-30-5-2 was issued. TVA considers that the issuance of DIM-WB-DC-30-5-2 is adequate to prevent recurrence of this deficiency.

All necessary design work has been completed for unit 1 and will be completed by September 9, 1985, for unit 2. All required construction work will be completed by April 12, 1985, for unit 1 and by January 9, 1986, for unit 2.