TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

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September 13, 1983

WBRD-50-390/82-72
WBRD-50-391/82-67

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - TORNADO DEPRESSURIZATION ON AUXILIARY BUILDING - WBRD-50-390/82-72, WBRD-50-391/82-67 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. V. Crlenjak on June 23, 1982 in accordance with 10 CFR 50.55(e) as NCR WBN NEB 8213. Interim reports were submitted on July 23 and November 15, 1982 and April 12 and August 8, 1983. 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

L. M. Mills

L. M. Mills, Manager
Nuclear Licensing

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

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
TORNADO DEPRESSURIZATION ON AUXILIARY BUILDING
NCR WBN NEB 8213
WBRD-50-390/82-72, WBRD-50-391/82-67
10 CFR 50.55(e)
FINAL INTERIM REPORT

Description of Deficiency

TVA calculation TI-ECS-11, "Tornado Depressurization Simulation of Auxiliary Building," assumes closed doors blow open at a pressure differential of 0.5 lb/in^2. Recent analyses indicate that doors may be significantly stronger when the pressure differential acts against the door frame. (A differential pressure of approximately 2 lb/in^2 may be required to cause door failure in this case.)

The original door blow-out pressure of 0.5 lb/in^2 was based on engineering judgment rather than on calculations or test results. At the point in time when the assumption of 0.5 lb/in^2 was made, there were no procedures in place that required verification of such methods.

Safety Implications

Loading on interior walls may be higher than was originally calculated, possibly causing collapse of the walls and subsequent damage of essential safety-related equipment. This condition could have jeopardized the safe operation of the plant.

Corrective Action

TVA's Civil Engineering Support Branch (CEB) has completed the calculation of door blow-out pressure for door failure both against and away from the door frame. TVA's Nuclear Engineering Support Branch (NEB) calculations (TI-ECS-11) have been revised to incorporate these blow-out pressures. The calculations also incorporated the opening of doors A180, A186, A189, and A192 before tornado depressurization with the result that loads in all interior walls and slabs are acceptable. TVA Plant Procedure AOI-8 (Tornado Watch) will be revised by October 17, 1983, to reflect the necessity of opening these doors upon official notification of a tornado warning. The WBN FSAR (section 3.3) is being revised to indicate these same changes.

TVA's Division of Engineering Design (EN DES) Engineering Procedure (EP) 3.10, "Design Verification Methods and Performance of Design Verifications," was issued after the original door blow-out pressure assumption was made. This EP is intended to prevent such assumptions by providing guidelines for the review of design documents to assure their quality and to minimize inadequacies. The issuance of the EP will prevent recurrence of such erroneous assumptions.