

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

August 19, 1983

USNR 2 PERMITS
ATLANTA, GEORGIA
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WBRD-50-390/83-02
WBRD-50-391/83-02

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:

WATT'S BAR NUCLEAR PLANT UNITS 1 AND 2 - AUXILIARY INSTRUMENT ROOM FIRE DOOR
FAILURE - WBRD-50-390/83-02, WBRD-50-391/83-02 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector
R. V. Crlenjak on December 29, 1982 in accordance with 10 CFR 50.55(e) as NCR
WBN MEB 8207. Interim reports were submitted on January 27 and May 18, 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

Records Center
Institute of Nuclear Power Operations
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Atlanta, Georgia 30339

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
AUXILIARY INSTRUMENT ROOM FIRE DOOR FAILURE
10 CFR 50.55(e)
WBRD-50-390/83-02, WBRD-50-391/83-02
NCR WBN MEB 8207
FINAL REPORT

Description of Deficiency

The double fire doors (C24) at the west end of the unit 2 auxiliary instrument room on control building elevation 713.0 failed during a CO₂ fire protection system concentration test conducted as part of preoperational test TVA-35A. The doors, which were designed to open into the room, were blown outward, hinges were bent, hinge screws were sheared, and the door frame was bent and separated from the wall. The failure occurred just before the end of a timed CO₂ discharge when the room pressure had reached approximately 12 inches of water and when the CO₂ concentration had reached 52 percent. The test acceptance criteria for concentration was 50 percent.

Identical doors did not fail during a concentration test conducted in the unit 1 auxiliary instrument room. No damage has resulted from over-pressurization in previous CO₂ system tests in other areas at Watts Bar and at other TVA nuclear plants except as noted in Sequoyah Nuclear Plant nonconformance report SQN MEB 7942 (dated December 5, 1979). This exception involved a structural deficiency that was peculiar to Sequoyah.

Although room pressure was monitored during the concentration tests, no acceptance criteria for the pressure was specified in the preoperational test instruction. Such criteria were omitted since the personnel establishing the preoperational test requirements did not expect room pressures during the concentration test that would result in any structural damages.

Safety Implications

The failure of a door during a fire in a CO₂-protected compartment could result in not reaching or maintaining sufficient CO₂ concentration to extinguish the fire. Such a failure could allow damage to safe shutdown equipment to exceed the limits established by section III.G of 10 CFR 50 Appendix R.

Corrective Action

Inspection of the failed doors indicates that the lower flush bolt locking the inactive leaf of the double door was not engaged in the strike plate at the floor. No damage, scuffing, or marring of the strike plate or floor was evident. Also, the flush bolt would not operate freely within the flush bolt guides, which was apparently present before the door failure occurred, and was the primary factor contributing to the failure of the doors.