

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

83 AUG 5 12:39

August 1, 1983

WBRD-50-390/81-68
WBRD-50-391/81-64

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:

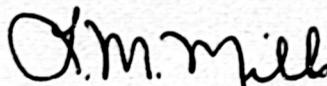
WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - CHECK VALVE ON DIESEL GENERATOR
STARTING AIR - WBRD-50-390/81-68, WBRD-50-391/81-64 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. V. Crlenjak on August 20, 1981 in accordance with 10 CFR 50.55(e) as NCR W-50-P. Interim reports were submitted on September 21, 1981; January 5, March 26, and August 31, 1982; and January 7 and April 8, 1983. Enclosed is our final report. We consider 10 CFR Part 21 applicable to this deficiency.

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, 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
1100 Circle 75 Parkway, Suite 1500
Atlanta, Georgia 30339

8308110167 830801
PDR ADOCK 05000390
S PDR

1983-TVA 50TH ANNIVERSARY

An Equal Opportunity Employer

OFFICIAL COPY

Tea7

11

ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
CHECK VALVE ON DIESEL GENERATOR STARTING AIR
10 CFR50.55(e)
NCR W-50-P
FINAL REPORT

Description of Deficiency

This deficiency concerns 3/4-inch Check-All style "CON" check valves located at the intake of each air receiver tank and on the crossover line between tanks in the diesel generator starting air system. With this arrangement, the spring-loaded, metal-to-metal seat valves were subjected to the severe pressure surges from the reciprocating compressors which charge the system. These valves, which were supplied by the diesel generator vendor (Power Systems Division of Morrison-Knudson, Rock Mount, North Carolina), failed in service when the disc stem pulled through at its point of attachment to the retainer piece due to the cycling action of the valve. The cause of this deficiency appears to be an incorrect valve selection for the intended location in the system.

Safety Implications

If the deficient check valves on the diesel generator starting air system had not been discovered, there is a possibility that the diesel generators, which are required to supply AC power to safety-related equipment upon loss of other AC power sources, would not start automatically (as required), thus adversely affecting the safe operation of the plant.

Corrective Action

TVA has temporarily replaced the deficient valves with soft-seated brass valves rated at 3000 lb/in² and has determined that a safety factor of 10 exists for these valves. This safety factor is sufficient to allow operation under design conditions (including a safe shutdown seismic event). ASME Section III, Class 3, soft-seated, stainless steel check valves have been ordered with a scheduled site delivery date of November 21, 1983. TVA plans to install these qualified valves during the first refueling outage. Also, air dryers have been installed between the air compressors and the affected valves. This action will decrease the probability of moisture-induced problems as well as reduce the air surge which caused the original valve failures.

In order to prevent recurrence of this problem, we have notified the diesel generator vendor of the failures and our corrective action. They determined that this type valve should not be used for air compressor service and their manager of engineering advised his people accordingly.