

TENNESSEE VALLEY AUTHORITY

400 Chestnut Street Tower II
KNOX, TENNESSEE 37719

USNRC REGION II
ATLANTA, GEORGIA

August 8, 1983

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WBRD-50-390/82-115
WBRD-50-391/82-107
HTRD-50-518/82-23
HTRD-50-520/82-23

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 AND HARTSVILLE NUCLEAR PLANTS UNITS 1 AND 2 - HENRY PRATT
BUTTERFLY VALVE DEFICIENCY - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. V. Crlenjak on November 9, 1982 in accordance with 10 CFR 50.55(e) as NCRs WBN MEB 8205 and HTN MEB 8203. Interim reports were submitted on December 7, 1982 and June 2, 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
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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ENCLOSURE

WATTS BAR AND HARTSVILLE NUCLEAR PLANT UNITS 1 AND 2
HENRY PRATT BUTTERFLY VALVE DEFICIENCY
NCRs WBN MEB 8205 AND HTN MEB 8203
WBRD-50-390, 391/82-115, 107 AND HTRD-50-518, 520/82-23
FINAL REPORT

Description of Deficiency

The Henry Pratt Company, Aurora, Illinois, notified TVA by a letter dated June 18, 1982 of a problem concerning their 24-inch butterfly valves which use a pneumatic valve actuator manufactured by G. H. Bettis Company in Houston, Texas. According to more recent information received by Pratt, the problem involved a failure of a pneumatic valve actuator yoke section at the Grand Gulf Nuclear Plant, Port Gibson, Mississippi. The cause of the actuator yoke failure was a design error which allowed an insufficient wall thickness of the yoke at a keyway where the yoke attaches to the valve stem. The yoke wall thickness with a 3/8-inch deep keyway was then overstressed through the full range of valve operating torques.

Safety Implications

Because the specific conditions which caused the valve actuator failure at Grand Gulf are not known, TVA does not know if these type actuators would fail at its plants. Assuming a valve actuator failure, there could be a subsequent loss of control of the 24-inch butterfly valve which could result in a loss of isolation capabilities for the emergency gas treatment system. This loss of isolation could affect safe operation of the plant.

Corrective Action

The pneumatic actuator manufacturer, G. H. Bettis, Co., has implemented a design change in the yoke to limit the keyway depth to 1/4-inch per their engineering change notice (ECN) 7639. This will prevent recurrence of this concern for other valves of this type.

TVA has received actuator modification kits for the valves at Watts Bar and will have these actuator repairs completed by September 12, 1983. For Hartsville, TVA returned the defective actuators to the vendor for repair at their facility and the repaired actuators have been received back on site.