DMB

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

5N 157B Lookout Place

WBRD-50-390/86-26
WBRD-50-391/86-22

JUL 31 1986

U.S. Nuclear Regulatory Commission
Region II
Attention: Dr. J. Nelson Grace, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Dear Dr. Grace:

WATTS BAR NUCLEAR PLANT (WBN) - UNIT 1 AND 2 - IMPROPER TORQUE SWITCH BYPASS SETTINGS - WBRD-50-390/86-26 and WBRD-50-391/86-22 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector Bob Carroll on January 24, 1986, in accordance with 10 CFR 50.55(e) as NCR W-330-P. Our interim report was submitted on February 24, 1986, and revised on March 26, 1986. Since our revised interim report was submitted, it has been determined that 2 of the 22 valves identified for IE Bulletin 85-03 do have the open torque and torque bypass switches and, therefore, do come under the scope of this deficiency, contrary to the statement in the cover letter for that report.

Delay in submittal of this report was discussed with Morris Branch on July 25, 1986.

If there are any questions, please get in touch with J. A. McDonald at (615) 365-8527.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

R. L. Gridley, Director
Nuclear Safety and Licensing

Enclosure
cc (Enclosure):
Mr. James Taylor, 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
IMPROPER TORQUE SWITCH BYPASS SETTINGS
WBRD-50-390/86-26, WBRD-50-391/86-22
NCR W-330-P
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

The open torque switch bypass settings on some motor-operated gate valves at Watts Bar Nuclear Plant (WBN) have been identified as inadequate. The settings were determined in accordance with the governing procedures, TVA General Construction Specification G-50, and plant implementing documents Program Element TS04.02-06.14 and Maintenance Instruction 0.3. These procedures required the settings to be two to three percent of stem travel.

Thirty gate valves, classified as both CSSC (critical structures, systems, and components) and non-CSSC, were tested at WBN using the motor-operated valve analysis and test system (MOVATS). Of the 30 valves tested, 40 percent were not unseated by the time the torque switch was placed back in the circuit at the required two to three percent of stem travel. This could result in torque switch actuation before the gate unseating and could prevent the valve from opening.

This deficiency is not applicable to all motor-operated gate valves at WBN. In most CSSC gate valves, the bypass setting is irrelevant due to the torque switch being jumpered out in the open cycle. Also, Westinghouse EMD valves are not affected by this problem due to vendor-established settings.

The deficiency identified by nonconformance report (NCR) W-330-P is similar to the condition identified by NRC-OIE Bulletin 85-03. Current TVA work to address this bulletin is, therefore, applicable to this item.

The root cause of this deficiency was the specification of torque switch bypass switch settings that were too close to the end of the valve travel for the measurement methods allowed. General Construction Specification G-50 required these switches be set at 97 to 98 percent of travel based on (a) physical measurement, (b) turns of the handwheel, or (c) turns of the drive sleeve. The specified 97 to 98 percent is not adequate to cover gate unseating, which on many valves does not occur until 92 to 93 percent of travel.

Safety Implications

There are 21 motor-operated valves in the safety injection (high pressure) and auxiliary feedwater systems identified at WBN as a result of NRC-OIE Bulletin 85-03. Of these 21 valves, only 2 valves presently have a torque switch and its associated bypass switch in the opening circuit. Based upon work up to this point, it appears that most CSSC motor-operated valves at WBN are not affected by this condition. In addition, General Construction Specification G-50 requires that torque switches, when used on valves that perform an engineered safety function, be set at the maximum setting allowed by the valve manufacturer. This would further lessen the probability of this deficiency

actually causing a CSSC valve to fail to operate. However, there are other CSSC motor-operated valves beyond the 21 identified for IE Bulletin 85-03 which could be affected by this condition. As such, safe plant operation could be affected due to failure of a CSSC valve to open.

Corrective Action

General Construction Specification G-50 will be revised by September 30, 1986 to provide more specific guidance in motor-operated valve switch settings as well as to incorporate improvements required by IE Bulletin 85-03. All safety-related valve motor-operators will then be checked to verify proper switch settings.

As part of TVA's action on NRC-OIE Bulletin 85-03, a design output document (i.e., engineering drawing, approved engineering calculation, etc.) which specifies and controls motor-operator switch settings will be issued. Plant procedures which govern testing and adjustment of the switch settings will then be revised and developed as necessary to reference the design document. This document, along with the revision to General Construction Specification G-50, will prevent a recurrence of the subject deficiency.

All necessary corrective actions will be completed before initial fuel loading for WBN units 1 and 2, respectively.