TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

12 AM 10:00

July 10, 1984

BLRD-50-438/83-61
BLRD-50-439/83-54

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Dear Mr. O'Reilly:

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2 - OVERTORQUED STUDS ON BORG-WARNER GATE VALVE MOTOR OPERATORS - BLRD-50-438/83-61, BLRD-50-439/83-54 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector P. E. Fredrickson on November 21, 1983 in accordance with 10 CFR 50.55(e) as NCR 2390. This was followed by our interim reports dated December 19, 1983 and March 23, 1984. 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: Mr. Richard C. DeYoung, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Records Center (Enclosure)
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, Georgia 30339

ENCLOSURE

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2
OVERTORQUED STUDS ON BORG-WARNER
GATE VALVE MOTOR OPERATORS
BLRD-50-438/83-61, BLRD-50-439/83-54
NCR 2390
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

The operator studs on the 6-inch 150 lb motor-operated gate valves (which isolate the auxiliary feedwater (AFW) from the emergency raw cooling water (ERCW)) could not be torqued to the 140-160 ft-lbs specified on Borg-Warner Corporation, (Van Nuys, California) drawing No. 79760. When approximately 70 percent of the recommended torque was applied, the maximum allowable yield stress for these studs was exceeded resulting in elongation.

Safety Implications

In the event of an emergency, where the normal source of AFW is not available and the only remaining available source of AFW is the ERCW, these isolation valves are required to open to allow the passage of cooling water to the AFW system. Since the operator studs become elongated upon being torqued, it is possible that the studs could become loose or break and lead to the misalignment or disengagement of the operator from the valve.

Without the use of the operator to automatically open the isolation valves upon receipt of the signal, one of the plant operators would have to manually open these valves which could take a considerable amount of time. During the time it takes to manually open the isolation valves, the plant would be without water to cool the primary system; thus, the safe operation and shutdown of the plant would be adversely affected.

Corrective Action

Borg-Warner has determined that the torque value listed on drawing No. 79760 was incorrect. The incorrect torque value on the drawing was an isolated drafting error which was subsequently repeated on other 6-inch, 150-lb valve drawings since the same data was applicable to all valves of that design. As a result of this error, all Borg-Warner 6-inch, 150-lb, motor-operated gate valve drawings were reviewed to ensure that the proper torque value was listed. Those drawings which were similarly affected (i.e., had incorrect torque values listed) were revised and resubmitted for TVA's use. Bellefonte's Division of Construction (CONST) will identify all valves affected by the drawing torque value change, including any installed valves which could have been subjected to the increased torque, and make any necessary operator stud repairs. The damaged operator studs for the valve on drawing 79760 will be replaced and retorqued to the correct value of 60-70 lbs. All TVA actions will be completed by October 31, 1984.