

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401  
400 Chestnut Street Tower II

84 OCT 29 October 25, 1984  
P. 46

BLRD-50-438/84-14  
BLRD-50-439/84-13

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 - ADAPTOR KEYWAY ON 8-INCH BORG-  
WARNER GLOBE VALVES - BLRD-50-438/84-14, BLRD-50-439/84-13 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector  
P. E. Fredrickson on January 31, 1984 in accordance with 10 CFR 50.55(e)  
as NCR 2787. This was followed by our interim reports dated February 29  
and July 10, 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*

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

8411210085 841025  
PDR ADDCK 05000438  
S PDR

OFFICIAL COPY

11-27  
11

## ENCLOSURE

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2  
ADAPTOR KEYWAY ON 8-INCH BORG-WARNER GLOBE VALVES  
BLRD-50-438/84-14, BLRD-50-439/84-13  
NCR 2787  
10 CFR 50.55(e)  
FINAL REPORT

### Description of Deficiency

During reassembly of an 8-inch Borg-Warner (B-W), Van Nuys, California, motor-operated globe valve (TVA Mark No. 3BW0420-CR-11), the adaptor keyway was found to be 11/16 inch wide while the corresponding stem keyway was 1/2 inch wide. It is possible that the 3/16-inch slack in the keyway assembly may lead to misalignment of the shaft which could subsequently increase the load on the operating mechanism. A brief inspection of the other three valves with this TVA mark number has revealed that the wide keyway condition also exists in the additional valves. The valves with Mark No. 3BW0420-CR-11 are located in the startup and recirculation system.

B-W notified TVA in their letter dated June 19, 1984 that the assignable cause of this deficiency is the duplication of a keyway design which was not compatible with these particular valves. B-W also concluded that this is an isolated design error which affects only those 8-inch B-W valves with the specified mark number.

### Safety Implications

Since it is possible that the 3/16-inch slack in the assembly may lead to misalignment of the shaft which could subsequently increase the load on the operating mechanism, the motor operators on the subject valves could fail to operate the valve upon demand. Thus, had this condition remained uncorrected, valves in essential safety-related systems could fail to operate upon demand which would subsequently adversely affect the safe operation of the plant.

### Corrective Action

B-W has corrected the design of the adaptor and will furnish new adaptors, replacement keys, and revised documentation to TVA. TVA will install the new hardware.

To prevent recurrence of this deficiency, B-W will require a more thorough checking of all designs before sign-off as stated in their June 19, 1984, letter to TVA.

All corrective action for this deficiency will be completed by December 14, 1984.