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

April 13, 1983

BLRD-50-438/82-04
BLRD-50-439/82-04

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:

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2 - BONNET STUDS IMPROPERLY TORQUED ON DECAY HEAT REMOVAL VALVES - BLRD-50-438/82-04, BLRD-50-439/82-04 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. V. Crlenjak on December 22, 1981 in accordance with 10 CFR 50.55(e) as NCR 1686. This was followed by our interim reports dated January 20, April 15, June 28, August 24, and November 1, 1982 and January 10, 1983. Enclosed is our final report. An extension on the submittal of this report was granted by NRC Inspector Floyd Cantrell on April 11, 1983. We consider 10 CFR Part 21 applicable to this deficiency.

If you have any questions concerning this matter, 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

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ENCLOSURE

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2
BONNET STUDS IMPROPERLY TORQUED ON DECAY HEAT REMOVAL VALVES
NCR 1686
BLRD-50-438/82-04, BLRD-50-439/82-04
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

The following Borg-Warner (Van Nuys, California) bolted bonnet gate valves were furnished on contract 77K38-86163-8 and were found by field inspection to have bonnet studs which were torqued to values less than required by the applicable vendor drawing.

Mark No.	Item No.	Drawing No.	Borg-Warner Serial No.	Observed Torque (Ft Lbs)	Required Torque (Ft Lbs)
3AW0412-ND-35	636	80140	26165*	50-100	160-200
			26166	20-100	160-200
			26167	20-100	160-200
			26168*	0-180	160-200
3AW0412-ND-45	638	80130	26598	20-180	160-200

The valves which are installed and operational (as indicated by *) have been retorqued to the value required by the vendor drawing.

TVA got in touch with Borg-Warner and informed them of the deficiency. Their response is contained in a letter dated March 22, 1982 (MEB 820330 500). Borg-Warner's investigation concluded that the current torque requirements, which were based on a gasket factor from ASME Section VIII Division J Table UA-49.1 1971 edition, do not in all cases effect a metal to metal contact between body and bonnet flanges. Under such conditions the gasket could take a set during storage thus reducing the gasket force on the studs/nuts and subsequently contribute to the "low torque" condition.

In addition, TVA has determined that similar Borg-Warner valves were supplied for use at TVA's Hartsville facility. Consequently, TVA will initiate an NCR to address the potential deficiencies with Borg-Warner valves supplied to Hartsville. However, since this facility is indefinitely deferred TVA has elected to take no immediate action regarding potentially deficient valves supplied to Hartsville and has placed this NCR on the list of nonconformances to be investigated upon restart.

Safety Implications

The subject valves are used on nine primary safety-related systems at Bellefonte. A failure of the subject valves could have resulted in a loss of the reactor coolant pressure boundary or a release of irradiated wastes that could have resulted in a condition that would exceed the guidelines specified in 10 CFR 100. Consequently, the cited condition could be adverse to the safety of operations of the plant or the ability to maintain the plant in a safe shutdown position.

Corrective Actions

The torque values have been reassessed based on an increase of the gasket factors from the ASME reference and the even higher recommended factors from the gasket manufacturer (MEB 820330 500).

Borg Warner's letter dated November 2, 1982 (MEB 821115 547), identified the valves subject to this deficiency and revised the affected vendor drawings as required by the increased torque values. The drawings were approved by TVA letter No. H-247 dated November 30, 1982 (MEB 821130 161).

TVA will retorque the valves to the newly defined values. All corrective action will be completed by December 5, 1983.