TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

December 13, 1982

BLRD-50-438/81-56
BLRD-50-439/81-58

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2 - RCS SUPPORTS AND RESTRAINTS - BOLT TORQUES - BLRD-50-438/81-56, BLRD-50-439/81-58 - FIFTH INTERIM REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. V. Crlenjak on August 24, 1981 in accordance with 10 CFR 50.55(e) as NCR BLN NEB 8111. This was followed by our interim reports dated September 24 and December 7, 1981 and March 10 and June 7, 1982. Enclosed is our fifth interim report. We expect to submit our next report by June 30, 1983. We consider 10 CFR Part 21 applicable to this deficiency. This deficiency has also been reported for Watts Bar and Yellow Creek Nuclear Plants as NCR GEN NEB 8201.

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

Mr. James McFarland (Enclosure)
Senior Project Manager
Babcock & Wilcox Company
P.O. Box 1260
Lynchburg, Virginia 24505

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ENCLOSURE

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2
RCS SUPPORTS AND RESTRAINTS - BOLT TORQUES
NCR BLN NEB 8111
BLRD-50-438/81-56, BLRD-50-439/81-58
10 CFR 50.55(e)
FIFTH INTERIM REPORT

Description of Deficiency

Babcock & Wilcox (B&W), Lynchburg, Virginia, specified ASME SA540 Class I and 2 material and a preload of 70 percent of ultimate tensile strength for many of the Reactor Coolant System (RCS) anchor bolts for supports and restraints. These materials have a minimum yield strength of 150 ksi and 140 ksi, respectively. Recently, it has been documented that stress corrosion cracking (SCC) is a potential failure mode for high yield strength ($\geq$ 120 ksi) low alloy steel bolting material subjected to appreciable steady state loads (generally preload in the case of supports and restraints) and typical reactor containment corrosive environments (humid air or borated water on occasion) for extended periods of time.

B&W notified TVA (in B&W letter to TVA, No. NEB 810825 627 dated August 19, 1981) that they had reported to the NRC, under the requirements of 10 CFR Part 21, concerns that B&W has with regard to stress corrosion cracking of high strength bolting material.

Interim Progress

TVA is still in the process of reviewing the B&W position regarding stress corrosion cracking (SCC) of high strength bolting material. At this time, TVA does not agree with B&W that all bolting greater than 120 ksi yield strength is subject to SCC. TVA has begun a program to survey the Reactor Coolant System material properties and is investigating minimum required loading conditions. This work is being done so that TVA will be able to address the high strength low alloy (HSLA) bolting SCC issue when acceptance requirements are defined by the NRC.

The NRC has indicated that they expect to have a technical position established early in the spring of 1983. TVA is working actively with the AIF/MPC Task Group on bolting to establish an industry position on the various bolting issues to satisfy industry and NRC concerns with SCC.

More information will be forwarded in our next report.