

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

December 21, 1983

BLRD-50-438/82-48

BLRD-50-439/82-43

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:

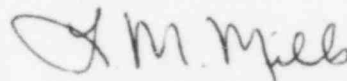
BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2 - DEFICIENT STEAM GENERATOR SUPPORT
BOLTS - BLRD-50-438/82-48, BLRD-50-439/82-43 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector
R. V. Crlenjak on July 23, 1982 in accordance with 10 CFR 50.55(e) as NCR
1887. This was followed by our interim reports dated August 19 and
December 21, 1982 and March 29 and August 5, 1983. Enclosed is our final
report.

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 (Enclosure):

Mr. Richard C. DeYoung, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

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

8401030101 831221
PDR ADOCK 05000438
S PDR

1627

1/1

ENCLOSURE
BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2
DEFICIENT STEAM GENERATOR SUPPORT BOLTS
NCR 1887
BLRD-50-438/82-48, BLRD-50-439/82-43
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

Several two-inch diameter bolts manufactured from SA 540 GR B24 material by Lakeside Bridge and Steel which are used in the upper steam generator restraints appear to be deficient. The deficiency involves loss of tension in the bolts after they were torqued to 65 percent of their ultimate strength. The bolts are in metal to metal joints. The loss of tension was discovered during reinspection of the bolts. The root cause of the tension loss was improper torquing technique in that TVA's Division of Construction (CONST) was tightening the bolts to 100 percent by a one-pass method.

Safety Implications

Failure of the restraint bolts would result in possible movement of the steam generator which could damage safety-related piping that is adjacent to the steam generator. Damage to the reactor coolant or other adjacent piping could adversely affect safe operation of the plant.

Corrective Action

To prevent recurrence of this deficiency, field change request No. M-3045 has been prepared to add a note to drawing 1RB0430-X2-01 R1 requiring a preload of 50 percent of ultimate or larger on high strength bolts and a two-pass method for torquing (the first tightening pass at 70 percent of required value and the second tightening pass to be at 100 percent of required value).

To ensure that all of the upper steam generator restraint bolts are properly torqued CONST is preparing a sequence control chart (SCC) that will show the two-pass method for torquing. Remaining corrective actions including adding the note to drawing 1RB0430-X2-01 R1, preparation of the SCC, and required retorquing of these bolts using the two-pass method will be completed by July 9, 1984.

There are no generic implications for this NCR for other TVA plants due to the differences in bolting procedures, bolting material, and various types of supports used. Other bolting issues are covered under individual NCRs as they are identified. Specifically, no other occurrences of this type of deficiency have been identified at Bellefonte. Both Watts Bar and Sequoyah plants tighten the subject bolts to a snug condition (no torquing is involved). At Yellow Creek (YCN), no bolting material of this specification (SA 54) has been installed. Instead, the upper steam generator supports at YCN are to be made up of snubbers, levers, links, pins, and embedments.