

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

October 30, 1984

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BLRD-50-438/84-19
BLRD-50-439/84-18

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:

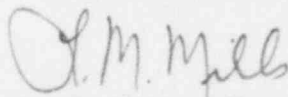
BELLEVILLE NUCLEAR PLANT UNITS 1 AND 2 - DEFECTS IN REACTOR PRESSURE VESSEL
STUD BOLT HOLES - BLRD-50-438/84-19, BLRD-50-439/84-18 - FINAL REPORT FOR
UNIT 1 AND THIRD INTERIM REPORT FOR UNIT 2

The subject deficiency was initially reported for unit 1 to NRC-OIE
Inspector P. E. Fredrickson on February 16, 1984 in accordance with 10 CFR
50.55(e) as NCR 2857. NCR 2915 was subsequently identified which
documented the deficiency for unit 2. This was followed by our interim
reports dated March 14 and July 13, 1984. Enclosed is our final report for
unit 1 and our third interim report for unit 2. We expect to submit our
next report on unit 2 on or about February 28, 1985.

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

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ENCLOSURE

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2
DEFECTS IN REACTOR PRESSURE VESSEL STUD BOLT HOLES
BLRD-50-438/84-19, BLRD-50-439/84-18
NCRs 2857 AND 2915
10 CFR 50.55(e)

FINAL REPORT FOR UNIT 1 AND THIRD INTERIM REPORT FOR UNIT 2

Description of Deficiency

It was identified that 56 of the 60 unit 1 reactor pressure vessel (RPV) stud bolt holes have damaged, corrosion pitted, tool chattered, stained and rough threads. Five of the stud holes were rejectable when checked with the vendor-supplied no-go gauge (used for checking dimensional configuration of the threads). This was documented on Nonconformance Report (NCR) 2857.

This condition has subsequently been identified as applicable to unit 2 in that 57 of the 60 unit 2 stud holes have similar corrosion damaged, tool chattered and rough threads. Of the 58 stud holes gauged, six were rejectable when checked with go and no-go gauges. Two of the RPV stud holes were not checked due to the insertion of alignment studs. This condition for unit 2 has been documented on NCR 2915.

TVA has determined that the corrosion damage and staining is due to a lack of adequate preventive maintenance and inspections. Some of the damaged threads may be due to mishandling of the temporary stud bolts during installation of the RPV. Preventive maintenance was inadequate because the manufacturer's maintenance instructions were not completely included on the maintenance inspection requirements sheet, attachment B of Bellefonte Nuclear Plant Quality Control Procedure (BNP-QCP) 1.3 "Preventive Maintenance."

Safety Implications

It is uncertain what effects the corrosion and damage would have had on the integrity of the closure of the RPV. However, had the condition remained uncorrected, further degradation of the RPV stud bolt holes due to corrosion damage could have occurred. This further degraded condition could possibly have led to a failure of the affected stud holes during normal operating or upset conditions. Thus, this condition could possibly have adversely affected the safe operation of the plant.

Corrective Action for Unit 1 (NCR 2857)

TVA's Office of Engineering (OE) requested a disposition of the subject deficiency from the vendor, Babcock and Wilcox (B&W). Based on B&W's inspection data and analysis (B&W document Nos. 51-1151007-00 and 32-1150598-00), B&W has recommended dispositioning the affected unit 1 RPV stud bolt holes to use-as-is. TVA has approved this disposition and has closed NCR 2857 accordingly.

To prevent recurrence of this deficiency, TVA will follow B&W's recommended maintenance instructions and will clean each affected stud bolt hole and apply an approved protective coating to each hole. Each stud bolt hole with a seal plug and O-ring will be inspected every 6 months. Any evidence of moisture, rust, or bleeding of rust from existing pitted holes will require that the affected holes be cleaned, coated and resealed. Stud bolt holes not having seal plugs installed will have a wooden cap installed and will be inspected every 2 months. The maintenance requirements sheet, attachment B of BNP-QCP 1.3, for the RPV stud bolt holes has been revised to reflect these requirements.

Interim Progress for Unit 2 (NCR 2915)

TVA has requested B&W to perform an inspection and analysis of each RPV stud bolt hole for unit 2. Further corrective action regarding this deficiency will be determined after B&W presents the results of their investigation.