

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

84 JUN 14 10 52
June 12, 1984

BLRD-50-438/84-37

BLRD-50-439/84-34

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 - FAILURE OF SSD ANCHORS IN CONCRETE
WALLS - BLRD-50-438/84-37, BLRD-50-439/84-34 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector
P. E. Fredrickson on May 15, 1984 in accordance with 10 CFR 50.55(e) as
NCR 1885. 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
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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BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2
FAILURE OF SSD ANCHORS IN CONCRETE WALLS
NCR 1885
BLRD-50-438/84-37, BLRD-50-439/84-34
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

TVA previously reported a deficiency involving numerous expansion shell anchor (SSD) failures, which was documented on nonconformance report (NCR) 1381 (BLRD-50-438/81-23, BLRD-50-439/81-25).

Subsequently, numerous SSD failures, in addition to those identified in NCR 1381, have occurred in the Control Building concrete pour C7-3A. The proof load failures in the entire C7-3A pour area appear to be excessive when compared to other areas tested. NCR 1885 expands the suspect area to incorporate the entire C7-3A pour area due to the additional high percentage failure rate of SSD anchors tested.

NCR 1381 documented SSD failures in the M and P line walls from column C8 to C10 and between elevation 680.36 to 687.0 which is a portion of the concrete pour designated C7-3A.

As noted in TVA's final report on NCR 1381, anchors failed due to low surface strength in the concrete in pour C7-3A.

Safety Implications

Since the surface strength of the poured concrete is less than that required to safely secure the shell anchors, it is possible that the SSD anchors would have failed which subsequently could have adversely affected the safety of the plant.

Corrective Action

TVA is in the process of replacing the SSD anchors with wedge bolts or grouted anchors that are more deeply embedded in the concrete to ensure acceptable strength capacity. To prevent recurrence, Bellefonte Quality Control Procedure BNP-QCP 2.8, "Bolt Anchors Set in Hardened Concrete," has been revised to prohibit any future installation of SSD anchors in the entire C7-3A pour area. All TVA action will be complete by October 15, 1984.