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SUBJECT: Interim deficiency rept, originally reported on 810310, re expansion anchor failures. Anchors installed in W & P line walls of control bldg exhibited high rate of proof of load failures. Concrete core samples being investigated.

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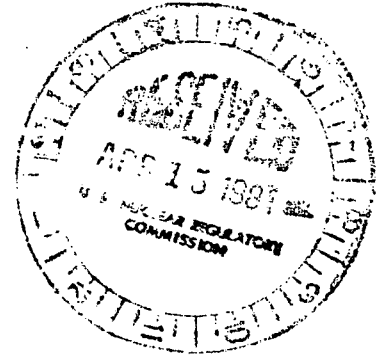
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400 Chestnut Street Tower II

BLRD-50-438/81-23
BLRD-50-439/81-25

April 9, 1981

Mr. James P. O'Reilly, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Region II-Suite 3100
101 Marietta Street
Atlanta, Georgia 30303



Dear Mr. O'Reilly:

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2 - EXPANSION ANCHOR FAILURES
BLRD-50-438/81-23, BLRD-50-439/81-25 - FIRST INTERIM REPORT

The subject deficiency was initially reported to NRC-OIE Inspector J. Crlenjak on March 10, 1981, in accordance with 10 CFR 50.55(e) as NCR 1381.

Enclosed is our first interim report. We expect to submit our next report by July 30, 1981.

If you have any questions concerning this matter, please get in touch with D. L. Lambert at FTS 857-2581.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager
Nuclear Regulation and Safety

Enclosure

cc: Mr. Victor Stello, Jr., Director (Enclosure) ✓
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

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ENCLOSURE
BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2
EXPANSION ANCHOR FAILURES
BLRD-50-438/81-23, BLRD-50-439/81-25
10 CFR 50.55(e)
FIRST INTERIM REPORT

Description of Condition

TVA General Construction Specification No. G-32 covers the installation and testing of expansion shell anchors installed into hardened concrete. It requires in process testing of samples of anchors installed by a specific crew either in a specific location or over a period of time. The anchors are proof loaded in tension to about 2.3 times the maximum design service load for the particular size of anchor.

For anchors installed in the M and P line walls of the Control Building between column lines C8 and C10, the rate of proof load failures was excessive. A total of 36 of 68 3/4-inch anchors failed the proof load test. Except for a few 1/4-inch anchors installed for small conduit, 3/4-inch was the only size used in these walls.

Interim Progress

The concrete has been checked using a rebound hammer, and one concrete core sample has been taken from one of the walls. Preliminary results indicate that the concrete near the surface of the wall has a somewhat lower strength than would be expected but has a compressive strength greater than the 3000 psi used for design.

Additional cores will be taken from the walls and from walls in which the anchors had an acceptable failure rate. In addition, the proof test reports will be reviewed to ensure that the failure rates for anchors in other walls are acceptable. The failure rate for the crew which installed the subject anchors will also be investigated.