

OFFICIAL COPY

50-438
439

400 Chestnut Street Tower II

July 17, 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 - CERTIFIED MATERIALS TEST REPORT
FOR PRESTRESSING SYSTEM MATERIALS - NCR BLN CEB 8005, INRYCO NCR-7, AND
INRYCO NCR-9 - FINAL REPORT

Nonconformance report BLN CEB 8005 was initially reported to NRC-OIE
Inspector R. W. Wright on September 11, 1980 in accordance with 10 CFR
50.55(e). This was followed by our first interim report dated October 9,
1980. Subsequently, Inryco NCR-7 was determined to be reportable.
This was followed by our interim reports dated February 10 and April 10,
1981. Since our last report, Inryco NCR-9 has been determined to be
reportable. Enclosed is our final report. We consider 10 CFR Part 21 to
be applicable to these nonconformances.

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

IE27
5/11

8107310105 810717
PDR ADCK 05000438
S PDR

ENCLOSURE

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2
CERTIFIED MATERIALS TEST REPORT FOR PRESTRESSING SYSTEM MATERIALS
NCR BLN CEB 8005, INRYCO NCR-7, AND INRYCO NCR-9
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

Heat traceability for anchorhead material used in the prestressing system for the primary containment is questionable. ACI-359, April 1973 trial use version, subsection CC-2470, requires the prestressing system materials be marked or tagged in such a manner as to ensure traceability to the Certified Materials Test Report (CMTR) during production and while in transit and storage. As a result of chemical tests on three anchorheads of heat code LP material, Inryco has determined that a possibility exists that there may be two separate material heats in LP, both of which have been coded LP. Chemical analysis of two of the three anchorheads are not consistent with the mill test report. The elements that are not within product analysis check tolerances are sulfur, phosphorus, and copper.

Additional chemical testing of six anchorheads has been performed by Inryco. The testing confirmed that some anchorhead material was incorrectly marked as heat code LP material.

Inryco then performed a review of the fabrication records of the vendor in question for all material in the shop during the affected time period. Inryco then constructed a defensible chronology of the fabrication of anchorheads from the heats coded LP and MB. It was established that 11 anchorheads of heat code MB were incorrectly marked as heat code LP material. This was verified by comparing the chemical analysis of the two anchorheads originally discovered with the mill test report and with the producing mill's report of the copper content of the heat coded MB. TVA has formally received the mill analysis of the copper content of the heat coded MB.

Inryco's review of the fabrication records also revealed that an anchorhead fabricated from LP material and supplied to Bellefonte Nuclear Plant was incorrectly heat coded NC. This anchorhead is identified as NC288 and is installed on tendon mark V238. Inryco was requested to nonconform this anchorhead and did so with Inryco NCR-9.

This deficiency was caused by inadequate procedures for maintaining heat traceability of anchorage material. The extent of the deficiency is limited to the 12 anchorheads covered by this report. Since corrective action to prevent recurrence has been instituted, there is a very low possibility that a similar deficiency will occur.

Safety Implications

Traceability of the anchorhead material to the CMTR is required to ensure traceability of the anchorhead material to the mill source and to establish the chemical composition and fabrication history of the anchorhead material. This is required to ensure that the material supplied is of the

quality specified. Although additional work had to be done to establish traceability of the LP and MB material, traceability was only temporarily lost. In addition, heat code MB is material of an acceptable quality to perform its intended function. This condition therefore could not have jeopardized the safe operation of the plant had it remained uncorrected.

Corrective Action

Inryco developed a new set of procedures for fabrication and identification of anchorhead material. These procedures have been approved by TVA and implemented by Inryco. The procedures establish tighter control of vendors by Inryco and also establish additional measures for maintaining heat traceability.

For the anchorheads supplied to TVA which were incorrectly heat coded, Inryco has revised the documentation and submitted it to TVA to be included in the documentation packages.

All action required to correct this deficiency has been completed. Bellefonte is the only TVA nuclear plant with a prestressed primary containment. Therefore, no other TVA nuclear plants are affected.