

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

March 30, 1982

BLRD-50-438/81-49

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303



Dear Mr. O'Reilly:

BELLEFONTE NUCLEAR PLANT UNIT 1 - LOCKOFF PRESSURE ON POSTTENSIONING
SYSTEM - BLRD-50-438/81-49 - FIFTH INTERIM REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. V. Crlenjak on July 17, 1981 in accordance with 10 CFR 50.55(e) as NCR BLN CEB 8104. This was followed by our interim reports dated August 17, September 18, and November 17, 1981, and January 7, 1982. Enclosed is our fifth interim report. We expect to submit our next report by August 16, 1982. We consider 10 CFR Part 21 to be applicable to this deficiency.

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 Regulation and Safety

Enclosure

cc: Mr. Richard C. DeYoung, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

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ENCLOSURE
BELLEFONTE NUCLEAR PLANT UNIT 1
LOCKOFF PRESSURE ON POSTTENSIONING SYSTEM
10CFR50.55(e)
NCR BLN CEB 8104
BLRD-50-438/81-49
FIFTH INTERIM REPORT

Description of Deficiency

Inryco, Incorporated, Bedford Park, Illinois, has been contracted (contract 75C53-85380) to supply and install the posttensioning system for the primary containment structures. Allowable lockoff stresses for each tendon have been established by Inryco in accordance with the April 1973 Trial Use Version of the ACI 359 code and the contract specifications. These lockoff stresses are required to provide assurance that the containment structure will have adequate prestress force to perform its intended safety function.

In order to resolve a problem with certain stressing gauges being out of calibration, Inryco performed liftoff tests on several horizontal tendons. These liftoff tests revealed that, in several cases, lockoff stresses were substantially lower than predicted.

Interim Progress

TVA has reviewed the sample liftoff data and concluded that the scope of the low liftoff problem is limited to tendons fabricated with wire supplied by Florida Wire and Cable Company (FWC), Sanderson, Florida. Bellefonte has been supplied with 113 of these tendons. Each of these tendons was used in the unit 1 horizontal prestress. Therefore, all unit 2 tendons and the unit 1 vertical and dome tendons are unaffected by this deficiency.

Inryco has performed 1000-hour relaxation tests on several samples of wire from Florida Wire and Cable Company (FWC). The tests indicate that the wire possesses relaxation characteristics substantially in excess of the contractually specified 8-1/2 percent. Inryco further performed liftoff testing in February 1982 on 24 selected unit 1 tendons. This liftoff testing also showed that the 113 unit 1 tendons fabricated with FWC wire were unacceptable as is.

Inryco has commenced restressing the 113 unit 1 FWC tendons. It is anticipated that this will bring the tendons into compliance with the design requirements. A sample of confirmatory liftoffs will be taken after completion of restressing to verify the adequacy of this corrective action. A final report on this deficiency will be supplied after the restressing is satisfactorily complete.