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MILLS,L.M. Tennessee Valley Authority
RECIP.NAME RECIPIENT AFFILIATION
O'REILLY,J.P. Region 2, Atlanta, Office of the Director

SUBJECT: First interim deficiency rept re analysis for loss of feedwater event,initially reported on 810316.B&W is developing anticipatory reactor trip based on ratio of main feedwater flow to reactor power.Addl info by 811119.

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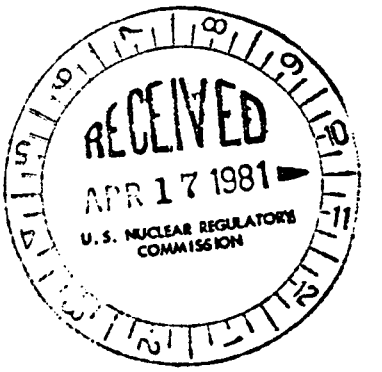

BLRD-50-438/81-24
BLRD-50-439/81-26

April 13, 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 - ANALYSIS FOR LOSS OF FEEDWATER EVENT
BLRD-50-438/81-24, BLRD-50-439/81-26 - FIRST INTERIM REPORT

The subject deficiency was initially reported to NRC-OIE Inspector J. Crlenjak on March 16, 1981, in accordance with 10 CFR 50.55(e) as NCR BLN NEB 8102.

Enclosed is our first interim report. We expect to submit our next report by November 19, 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. James McFarland (Enclosure)
Senior Project Manager
Babcock & Wilcox Company
P.O. Box 1260
Lynchburg, Virginia 24505

Mr. Victor Stello, Jr., Director (Enclosure) ✓
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U.S. Nuclear Regulatory Commission
Washington, DC 20555

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ENCLOSURE
BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2
ANALYSIS FOR LOSS OF FEEDWATER EVENT
BLRD-50-438/81-24, BLRD-50-439/81-26
10 CFR 50.55(e)
FIRST INTERIM REPORT

Description of Deficiency

The Bellefonte Final Safety Analysis Report (FSAR) analysis for the loss of normal feedwater event (section 15.2.7) may not be conservative. The Bellefonte FSAR analysis predicts that the ASME Section III Code limits for overpressurization of the Reactor Coolant System will not be exceeded following a loss of normal feedwater. The Babcock and Wilcox (B&W) Company has performed a more recent analysis for the Washington Public Power Supply System (WPPSS) which predicts that the ASME Code limits for overpressurization will be exceeded following a loss of feedwater.

A B&W representative stated during a March 12, 1981, meeting of the B&W Nonoperating Owners Group that B&W analysts were aware of the possibility of a nonconservatism in the B&W computer codes when the Bellefonte analyses were being performed. B&W has several computer codes, including "POWER TRAIN," "CADDS," and "TRAP2," which can be used to predict Reactor Coolant System pressure following a decrease in heat removal by the secondary system. The computer code "CADDS" was used by B&W for the Bellefonte loss of feedwater analyses. Apparently, "CADDS" predicts a lower Reactor Coolant System pressure than one or more of the other computer codes available to B&W, TVA notes that the NRC has also raised a concern about the adequacy of "CADDS" in NUREG-0560.

This NCR was deemed reportable because if a nonconservative computer analysis is used a potential exists for overpressurization of the Reactor Coolant System. This NCR also indicates a possible failure of B&W's Quality Assurance program to resolve a known discrepancy in the analyses used to calculate Reactor Coolant System pressure following a loss of feedwater.

Interim Progress

B&W will be requested to resolve the apparent discrepancy between the Bellefonte FSAR analysis and the more recent WPPSS analysis. Also, B&W is currently developing an anticipatory reactor trip based upon the ratio of main feedwater flow to reactor power. Preliminary analyses by B&W indicates that the anticipatory trip will limit reactor coolant pressures to less than the allowable ASME Code overpressurization limits. An anticipatory reactor trip upon loss of normal feedwater will be installed at Bellefonte in compliance with NUREG-0737, item II.K.2.10.

TVA anticipates additional information from B&W concerning the design of the anticipatory trip by October 1, 1981. Also, B&W will be requested to respond to our request for additional information concerning the Bellefonte FSAR analysis.

The Bellefonte FSAR analysis is unique to B&W and therefore no other TVA nuclear plants are affected.