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 O'REILLY, J.P. Region 2, Atlanta, Office of the Director

SUBJECT: Final deficiency report re automatic closure of borated water storage tank isolation valves, initially reported on 801203. Revised design drawings implementing Design Criteria N4-ND-D740 to be completed by 810504.

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 TITLE: Construction Deficiency Report (10CFR50.55E)

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JA

TENNESSEE VALLEY AUTHORITY
KNOXVILLE, TENNESSEE 37901

400 Chestnut Street Tower II

March 24, 1981

BLRD-50-438/81-11
BLRD-50-439/81-11

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 - AUTOMATIC CLOSURE OF BORATED WATER
STORAGE TANK ISOLATION VALVES - BLRD-50-438/81-11, BLRD-50-439/81-11 -
FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector
R. W. Wright on December 3, 1980, in accordance with 10 CFR Part 50.55(e)
as NCR BLN BLP 8010. This was followed by our interim reports dated
January 2 and February 18, 1981. Enclosed is our final report.

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, 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
AUTOMATIC CLOSURE OF BORATED WATER STORAGE TANK ISOLATION VALVES
BLRD-50-438/81-11, BLRD-50-439/81-11
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

The Solid State Control System design does not provide automatic closure of the borated water storage tank (BWST) isolation valves. TVA Design Criteria N4-ND-D740 requires implementation of Babcock and Wilcox Decay Heat Removal System Description 15-403600001, Section 3.1, and Appendix C Logic Drawing 1002195. These documents require "after switchover to the reactor building emergency sump (RBES) from the borated water storage tank (BWST), the BWST isolation valves relieve a signal to close upon 100 percent opening of the RBES isolation valves." The previous revision of the control logic drawing and the control logic implementation circuit interface diagram revisions did not reflect this requirement.

The cause of the deficiency involved improper use of the design review method of verification procedure for control documents in the design process for control logic diagrams and their implementation drawings.

Safety Implications

Because the low level of the BWST is well above the flooded RBES, the BWST isolation valves need not close in order to ensure adequate suction for the pumps drawing from the RBES. A gravity check valve in the drain line ensures that containment integrity will be unaffected should the valves remain open. However, the closure of the BWST isolation valves is included in design criteria specifically to ensure that containment integrity will be maintained. Had the containment integrity been jeopardized, the safe operation of the plant would have been affected.

Corrective Actions

Revised design drawings implementing Design Criteria N4-ND-D740 will be completed by May 4, 1981. TVA's project engineers responsible for the control logic have been advised of the subject deficiency and will issue nonconformance reports on each item identified in the future. A report of nonconformance (BLN QAB 8101) has been issued by TVA's quality assurance engineers which will address the possibility of the generic aspects of this nonconformance.