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

SUBJECT: Final deficiency rept re makeup pump control logic,initially reported 810206.Logic drawings w/design requirements that have not been implemented in makeup pump control logic listed.Corrected designs will be issued by 810911.

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TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

March 9, 1981

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U.S. NUCLEAR REGULATORY COMMISSION

BLRD-50-438/81-19
BLRD-50-439/81-19

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 - MAKEUP PUMP CONTROL LOGIC - BLRD-50-438/81-19, BLRD-50-439/81-19 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. W. Wright on February 6, 1981, in accordance with 10 CFR 50.55(e) as NCR BLN BLP 8101. 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, 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
MAKEUP PUMP CONTROL LOGIC
BLRD-50-438/81-19, BLRD-50-439/81-19
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

The Solid State Control System (SSCS) control logic and hardware implementation does not meet design criteria requirements of the Makeup and Purification System Design Criteria (NF-NVD740). Section 3.2.1, item 4 of that criteria, requires implementation of Babcock and Wilcox Makeup and Purification System Description (5-4035000003-07) Appendix C logic drawings 1001701, 1001702, and 1001703.

These logic drawings require design requirements that have not been implemented in the present design of makeup pump control logic. These are listed below:

Design Criteria Requirement	Present Design
A. Time delay for low pump suction pressure trip	A. No time delay
B. Low discharge pressure trip disabled for first 5 seconds of pump operation	B. Continuous disable
C. High recirculation pressure trip disabled only after first minute of operation	C. No disable
D. Train A pump designated run only loaded on train A diesel for an engineered safety features actuation (ESFA)	D. Both train A pumps are started automatically for low seal injection flow concurrent with or subsequent to a loss of power for ESFA
E. Automatic start of train B pump for an ESFA	E. Train B pump is not started automatically for an ESFA

In addition, the Standby AC Auxiliary Power System Design Criteria (N4-RPD775A), Section 3.4.4, requires manual operator actuation only following a subsequent undervoltage trip. The present design does not disable a first loss-of-power automatic start following a subsequent undervoltage.

Safety Implications

The present logic would have resulted in a failure of the pumps to operate properly. These pumps must function within the specifications of the applicable design criteria in order to ensure operation of the Emergency Core Cooling System. Failure of these pumps to do so would have resulted in a degradation to the safety of operation of the plant as it would have affected the ability to safely shutdown. In addition, had the present Standby AC Auxiliary Power System design remained uncorrected, its proper function would also have been affected.

Corrective Action

TVA will review and correct all affected drawings and diagrams. The scheduled date of completion for the design changes is September 11, 1981. The corrected designs will be issued at that time which will properly reflect all design criteria. Design engineers have been advised to correctly implement design criteria. Project engineers responsible for control logic have been advised of the subject deficiency and will issue nonconformance reports for each item identified in the future.