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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: Final deficiency rept re automatic loading of control bldg water chillers,initially reported on 810324.Revised design & hardware implementation drawings reflecting design criteria to be completed by 810610.

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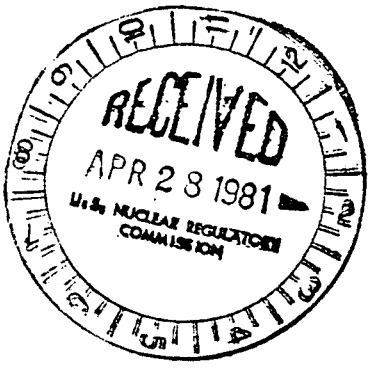
TENNESSEE VALLEY AUTHORITY
CHATTANOOGA TENNESSEE 37401

400 Chestnut Street Tower II

April 23, 1981

BLRD-50-438/81-26
BLRD-50-439/81-29



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 LOADING OF CONTROL BUILDING WATER CHILLERS - BLRD-50-438/81-26, BLRD-50-439/81-29 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector J. Crlenjak on March 24, 1981, in accordance with 10 CFR 50.55(e) as NCR BLN BLP 8106. 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
AUTOMATIC LOADING OF CONTROL BUILDING WATER CHILLERS
BLRD-50-438/81-26, BLRD-50-439/81-29
FINAL REPORT

Description of Deficiency

The functional control logic and hardware implementation for the chilled water pumps do not meet the requirements of the Main Control Room Habitability System Design Criteria N4-50-D746. Section 3.6 of that criteria requires automatic loading of the Control Building water chillers onto emergency power after a loss of power. The present design provides the automatic loading signal but starting of the water chiller compressor is inhibited by the presence of a low water flow signal. The chilled water pumps are started concurrently with the water chillers from the same output control device. However, a time delay is required for the low water flow signal in order to allow the chilled water pumps to start and establish the water flow.

The cause of the deficiency involved inadequate design review verification (i.e., TVA EN DES-EP 4.25, "Design Review and Interface Coordination of Detailed Construction and Procurement Drawings").

Safety Implications

Cooling of electrical equipment in the Control Building is dependent upon the operation of the water chillers. The present design of the logic and implementation drawings do not permit restart of the water chilling equipment after a loss of power. Without their operation, temperatures in the Control Building could exceed the required ambient limit of 90°F, thus jeopardizing the continued operation of some safety-related electrical components and possibly affect safety of operations of the plant.

Corrective Action

Revised design and hardware implementation drawings which properly reflect design criteria will be completed by June 10, 1981. Design engineers have been advised to correctly implement the design criteria. In accordance with TVA EN DES-EP 4.25, the functional control logic diagram and circuit interconnection diagrams for Class IE systems will be submitted for further review to assure conformance with design criteria. The failure to implement design criteria per TVA procedures will be addressed in Bellefonte NCR BLN QAB 8101.