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TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

June 4, 1981

BLRD-50-438/81-29
BLRD-50-439/81-32

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 - TEMPERATURE SWITCHES IN AUXILIARY POWER SYSTEMS - BLRD-50-438/81-29, BLRD-50-439/81-32 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. V. Crlenjak on March 30, 1981, in accordance with 10 CFR 50.55(e) as NCR 1411. This was followed by our first interim report dated April 29, 1981. A change in the submittal date for the final report was coordinated with R. V. Crlenjak by telephone on May 7, 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 by DSK

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
TEMPERATURE SWITCHES IN AUXILIARY POWER SYSTEMS
BLRD-50-438/81-29, BLRD-50-439/81-32
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

Electrical switches in the Auxiliary Steam System are designed to conform to the requirements of Design Criteria N4-SA-D740, "Design Criteria for the Auxiliary Steam System." According to that criteria, electrical temperature switches are to be purchased as Class IE qualified equipment.

Construction employees discovered during the installation process that temperature switches in the auxiliary building, used to monitor room temperature, were not properly qualified. These switches which isolate the auxiliary steam system in the event of a steam line break were not purchased with Class IE qualifications. This deficiency was apparently an oversight on the part of the original designer to properly specify the necessary qualifications.

Safety Implications

In order to reduce the possibility of common mode failure, redundant sensors separated by at least three feet are provided. Failure of TVA to purchase these switches as Class IE qualified indicates that a seismic event could lead to the failure of two of these switches in a single area. If a seismic event were to occur concurrent with an auxiliary steam line break, a failure of this nature would cause the break to be unmitigated until the line could be isolated by manual operation of the isolation valve from a local panel. Consequences of the break would depend upon the severity of the break and the celerity of the operators in manually isolating it. In the worst possible case, temperatures exceeding the purchase specifications of safety-related equipment in the auxiliary building could adversely affect that equipment, thus degrading the ability of the plant to perform a safe shutdown.

Corrective Action

To correct this deficiency, new switches having Class IE qualifications have been ordered. These will replace the switches in question. In order to prevent recurrence, responsible TVA designers have been made aware of this deficiency and of the need to purchase equipment with proper qualifications. Should any similar deficiencies be discovered in the future, TVA will process a nonconformance report in accordance with Engineering Procedure 1.26, Nonconformances - Reporting and Handling, by Engineering Design.