

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

5N 157B Lookout Place

March 18, 1986

BLRD-50-438/85-14
BLRD-50-439/85-14

U.S. Nuclear Regulatory Commission
Region II
Attn: Dr. J. Nelson Grace, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Dear Dr. Grace:

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2 - CONTAINMENT ISOLATION BARRIER
DEFICIENCY - BLRD-50-438/85-14, BLRD-50-439/85-14 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector
Al Ignatonis on April 22, 1985 in accordance with 10 CFR 50.55(e) as NCR BLN
NEB 8503. This was followed by our interim reports submitted on May 20 and
September 19, 1985. Enclosed is our final report.

If you have any questions, please get in touch with R. H. Shell at
FTS 858-2688.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

J. A. Domes
R. L. Gridley
Manager of Licensing

Enclosure

cc: Mr. James Taylor, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Records Center (Enclosure)
Institute of Nuclear Power Operations
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ENCLOSURE

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2
CONTAINMENT ISOLATION BARRIER DEFICIENCY
BLRD-50-438/85-14 AND BLRD-50-439/85-14
NCR BLN NEB 8503
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

The design criteria for the containment isolation and leak testing system, N4-NI-D740, requires at least two containment isolation barriers with the following minimum requirements: containment isolation valves, piping between these valves, and closed systems used as isolation barriers shall be, as a minimum, ANS Safety Class 2.

The drain line and the compressed air line attached to the fuel transfer tube (penetrations X-37 and X-78) each has only one manual isolation valve within the seismic Category I, Safety Class 2 boundaries.

The deficiency was caused by the code boundaries being shown incorrectly for the spent fuel cooling system on the design criteria diagram (38W0654-NM-01), which resulted in only one qualified valve providing containment isolation. Since this was the only deficiency found of this nature, it is considered to be an isolated occurrence of an inadequate design for containment isolation and leak testing.

A review of generic implications for this deficiency has determined that other TVA plants are not affected.

Safety Implications

Containment integrity could be degraded because of an isolation barrier deficiency (e.g., valve failure or leak or pipe break) that could result in an uncontrolled radiation release potentially exceeding site boundary radiological release limits.

Corrective Action

TVA design documents have been reviewed and revised to comply with the code and safety requirements. The design of the drain line and the compressed air line on the transfer tube are now in compliance with TVA design criteria document N4-NI-D740 and ANS Safety Class 2 requirements. Revised design documents were issued under engineering change notice (ECN) 3295 to implement the physical changes to the drain line and compressed air line. Valves will be installed in the drain line and compressed air line to provide the required double isolation for the containment. Seismic analysis of the piping has been done to verify that the Category I requirements are met. All corrective action is scheduled to be complete by six months before fuel load of the applicable unit.

New TVA procedure, Office of Engineering Procedure (OEP)-10, which delineates the review process, requires and has established a design verification procedure that will ensure an adequate design review is performed and documented. This design review and verification will ensure that drawings of this type receive proper review in the future. The Office of Engineering personnel have been trained in this OEP (before the June 29, 1985 effective date.) Since this deficiency is considered an isolated occurrence, no additional action to prevent recurrence is required.