TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401
5N 157B Lookout Place

March 5, 1986

BLRD-50-438/84-45
BLRD-50-439/84-41

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 - SUPPORTS MAY BE IMPROPERLY ATTACHED TO INTENSIFIED COMPONENTS - BLRD-50-438/84-45, BLRD-50-439/84-41 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector P. E. Fredrickson on August 9, 1984 in accordance with 10 CFR 50.55(e) as NCR BLN CEB 8411. Our first interim report was submitted on September 11, 1984. 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

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
1100 Circle 75 Parkway, Suite 1500
Atlanta, Georgia 30339

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ENCLOSURE

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2
SUPPORTS MAY BE IMPROPERLY ATTACHED TO INTENSIFIED COMPONENTS
BLRD-50-438/84-45 AND BLRD-50-439/84-41
NCR BLN CEB 8411
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

Some pipe supports designed by ITT Grinnell, Providence, Rhode Island, and located on alternately analyzed safe y-related systems have incorporated welded pipe attachments on intensified components. These components are typically piping elements such as elbows, tees, etc., that are subject to stress intensification. This arrangement violates TVA's alternate analysis criteria and is an unacceptable design configuration.

TVA's Civil Engineering Branch evaluated the generic implications of the identified deficiency and determined that the scope of the deficiency was limited to the type of Bellefonte supports identified above.

The root cause of this deficiency was TVA's failure to instruct ITT-Grinnell on the limitations of lug stress allowables for alternate lug designs.

Safety Implications

The use of welded attachments on intensified components could raise the stress intensification factor of the attached components above acceptable levels. This could result in failure of the attached components and a loss of function or degradation of performance of affected systems, thus adversely affecting the safe operation of the plant.

Corrective Actions

TVA performed a review to identify all ITT Grinnell supports containing integral pipe attachments made to intensified piping components on alternately analyzed piping systems. The review identified three supports under the scope of the non-conformance report (NCR). Supports 1NB-MPHG-0673 SH 1 and 1NB-MPHG-0677 SH 1 were redesigned per engineering change notice (ECN) 3322 to remove the integral attachments (stanchions) from the itensified components (elbows). Rework of the supports will be completed no later than six months before unit 1 fuel load. Support 0VK-MPHG-0304 was requalified, using new procedures, to remain as designed.

Design criteria N4-50-D717 was modified to incorporate the new procedures used to qualify support OVK-MPHG-0304, per exception request EX-N4-50-D717-1, to allow the use of integral attachments on intensified components in some cases.

To prevent recurrence of this deficiency, the support vendor (ITT Grinnell) was notified to stop designing these types of integral attachments on alternately analyzed piping. ITT Grinnell's design services contract was substantially complete by the time the disposition was determined. Therefore, TVA determined that there was no reason to allow ITT-Grinnel to incorporate integral attachments to intensified components on their remaining work. Also, the Bellefonte Pipe Support Design Manual Section 7.4 was issued (Rev 2) containing the necessary equations to evaluate these specific integral attachments.