TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

October 22, 1982

BLRD-50-438/81-54
BLRD-50-439/81-56

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2 - STRUCTURAL TUBING EXCEEDING AWS ALLOWABLES - BLRD-50-438/81-54, BLRD-50-439/81-56- REVISED FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector D. Quick on August 13, 1981 in accordance with 10 CFR 50.55(e) as NCR BLN BLP 8121. This was followed by our first interim report dated September 14, 1981 and our final report dated December 2, 1981. Enclosed is our revised final report.

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

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager
Nuclear Licensing

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

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ENCLOSURE

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2
STRUCTURAL TUBING EXCEEDING AWS ALLOWABLES
NCR BLN BLP 8121
BLRD-50-438/81-54, BLRD-50-439/81-56
10 CFR 50.55(e)
REVISED FINAL REPORT

Description of Condition

In the Bellefonte Final Safety Analysis Report (FSAR), Section 3.8.4.2, a commitment was made to the American Welding Standards (AWS) Structural Welding Code, AWS D1.1-72. This edition of the code provides a punching shear stress check for circular tubular members only. A check for square and rectangular tubular members was not added to the code until the middle 1970's. At the time design work was in progress on the Control Building cable tray supports, the appropriate stress check was not available.

There are 86 braced cable tray supports in the Control Building which have main vertical members consisting of structural tubing size TS 8" x 8" x .25", TS 8" x 8" x .3125", or TS 8" x 8" x .375". These supports have been braced with square structural tubing whose width is 6 inches or less. At the point where the brace connects to the main vertical member, the punching shear stress in the main vertical member exceeds the allowables as specified in AWS D1.1-81, part B of section 10.

Safety Implications

By exceeding the punching shear allowables, the effectiveness of the brace could be diminished during a seismic event. This could cause the supports to displace excessively and this, in turn, could damage safety class cables, etc.

Corrective Action

The design drawings (see attachment A) which dictate the configuration of the 86 cable tray supports have been altered. In the design, two 3/8-inch thick wing stiffener plates were added to the connection at the point where the brace connects to the main vertical member. This modification will ensure seismic qualification of the supports. In order to complete the required work, Engineering Change Notice 1320 was issued August 13, 1981. The revised seven drawings showing the cable tray supports were issued November 16, 1981. To prevent recurrence, cable tray supports will be designed according to AWS D1.1-72, except that AWS D1.1-81, section 10.5 will be used to evaluate punching shear where applicable. The requirement to use the 1981 version of the code will be noted to TVA designers by a memorandum to be issued on or before December 1, 1982.

ATTACHMENT A

NONCONFORMANCE REPORT BLN BLP 8121

Drawing Number	Support	Number Required
4CW0942-X2-7	MK 22	11
	MK 22A	1
	MK 22B	1
	MK 23	12
	MK 23A	10
	MK 24	2
	MK 24A	2
	MK 24B	1
	MK 25	1
	MK 26	3
	MK 26A	2
	MK 27	4
	MK 27A	5
	MK 27B	10
	MK 38	1
4CW0942-X2-8	MK 32	1
	MK 32A	1
	MK 33	2
4CW0943-X2-4	MK T/B 5	1
4CW0943-X2-5	MK T/B 23	1
4CW0943-X2-9	MK T/B 14	1
4CW0943-X2-12	MK T/B 3	1
	MK T/B 4	1
	MK T/B 6	1
	MK T/B 7	2
	MK T/B 7A	1
4CW0943-X2-13	MK T/B 11	2
	MK T/B 11A	4
	MK T/B 13	1
	Total	86