

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

December 2, 1981 81 DEC 3 A 8:34

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



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 - STRUCTURAL TUBING EXCEEDING AWS  
ALLOWABLES - BLRD-50-438/81-54, BLRD-50-439/81-56- 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. Enclosed is our 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*  
for 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  
STRUCTURAL TUBING EXCEEDING AWS ALLOWABLES  
BLRD-50-438/81-54, BLRD-50-439/81-56  
10 CFR 50.55(e)  
FINAL REPORT

### Description of Condition

In the Bellefonte Final Safety Analysis Report (FSAR), Section 3.8.4.2, a commitment was made to use 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 3" x .3125", and TS 8" x 8" x .375". These supports have been braced with 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 ANSI/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-related 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 ANSI/AWS D1.1-31 instead of AWS D1.1-72. FSAR Section 3.8.4.2 will be revised to include a reference to the applicable code.

ATTACHMENT A

NONCONFORMANCE REPORT BLN BLP 8121

<u>Drawing Number</u>	<u>Support</u>	<u>Number Required</u>	
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		<u>1</u>	
	Total	86	