

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

5N 157B Lookout Place

NOV 02 1987

WBRD-50-390/82-80
WBRD-50-391/82-76

10 CFR 50.55(e)

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of the Application of)
Tennessee Valley Authority)

Docket Nos. 50-390
50-391

WATTS BAR NUCLEAR PLANT (WBN) UNITS 1 AND 2 - CABLE BEND RADIUS DEFICIENCY -
WBRD-50-390/82-80 AND WBRD-50-391/82-76 - SCHEDULE FOR REVISED FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. V. Crlenjak on July 29, 1982, in accordance with 10 CFR 50.55(e) as NCR WBN 4194R. Our final report was submitted on September 13, 1983. NRC closed the licensee-identified item (LII) based on an inspection performed September 13-16, 1983. Because of employee concerns at WBN, Region II issued a letter dated August 15, 1986, reopening the item and requesting a revised final report and additional information. TVA has submitted letters dated October 2, 1986, December 22, 1986, and January 28, 1987, providing schedules for a response to this request. Manpower losses resulting from support of the Sequoyah restart effort have hindered establishment of an accurate schedule.

Based on our current schedules we will provide our final report on the entire cable bend radius issue, including response to all eleven NRC questions, on or about November 15, 1988. We therefore request that you close CDRs 390/85-63, 85-44, and 391/85-59, 85-43 and track the issue under CDRs 390/82-80 and 391/82-76.

If there are any questions, please telephone R. D. Schulz at (615) 365-8527.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

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R. Gridley
R. Gridley, Director
Nuclear Licensing and
Regulatory Affairs

Enclosure
cc: See page 2

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U.S. Nuclear Regulatory Commission

NOV 02 1987

cc (Enclosure):

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ENCLOSURE

SHIELDED POWER CABLE BEND RADIUS DEFICIENCIES
NCR WBN 4194R
RESPONSE TO QUESTIONS 1 AND 2 OF
G. G. ZECH'S AUGUST 15, 1986 LETTER TO S. A. WHITE

Question 1

Why did TVA purchase and install 12-inch radius raceways that did not allow conformance with General Construction Specification G-38 specifications and/or ICEA industry standards for cable bend radii? Describe the apparent QA/QC breakdown in purchase order/specification review prior to placing order.

Response

The purchase and installation of 12-inch radius raceways occurred prior to minimum cable bend radius being addressed in General Construction Specification G-38, Revision 3 (issued September 27, 1982) for installation of cables in cable trays and prior to issuance of Insulated Cable Engineer's Association (ICEA) standard ICEA S-66-524 in 1982.

TVA specified the use of 12-inch radius cable tray fittings according to the TVA Master Bill of Material. Thus, the individual contract specifications reflected requirements used on previous plants and were considered appropriate without additional design review of the purchase order/specification before placing the order for the 12-inch radius cable tray fittings. Design standard DS-E12.1.5 now requires consideration of the effect on cable bend radius before specifying cable tray/conduit fittings.

Question 2

Address the inadequacies in the QA/QC program that allowed the cable bend radius deficiency to go undetected until June 1982.

Response

The revisions of the following design input and construction documents in effect at the time of the deficiency were researched:

- Electrical Design Standard DS-E13.1.2
- General Construction Specification G-38
- Inspection Procedure QCP 3.5

In section 3.0, Electrical Design Standard DS-E13.1.2 addressed cable bending radii for pulling in conduit, but not in cable trays specifically. The design standard did state that "In no case should radius of the bend be less than that obtained by using the minimum factor..."

General Construction Specification G-38 addressed this cable bending radius requirement as it pertained to "Maximum Pulling Force," providing the same calculation as DS-E13.1.2 to determine the minimum cable bending radius. G-38 also stated that "... at tray fittings were necessary to prevent exceeding the minimum cable bend radius..." the minimum spacing requirement should be modified.

Inspection procedures QCP 3.5 R13 and QCP 3.05 R14 (issued July 19, 1982 to supersede QCP 3.5 R13) dealt with ensuring cable bend radius was not violated. Both dealt primarily with cable bending radius as it pertained to terminations and cable pulling, not with the issue in regards to cable tray fittings.

The applicable procedures were not clear in specifying cable bend radius requirements for cable trays. Personnel incorrectly assumed that bend radius violations would not occur in cable trays. Procedures were subsequently revised to eliminate the potential for misinterpreting cable bend radius requirements for cable trays.