TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

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October 24, 1985

WBRD-50-390/85-43
WBRD-50-391/85-42

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

Dear Dr. Grace:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - QUESTIONABLE COMPRESSION FITTINGS ON INSTRUMENTATION TUBING - WBRD-50-390/85-43, WBRD-50-391/85-42 - INTERIM REPORT

The subject deficiency was initially reported to NRC-OIE Inspector Al Ignatonis on September 24, 1985 in accordance with 10 CFR 50.55(e) as NCR WBN 6278. Enclosed is our interim report. We expect to submit our next report on or about December 11, 1985.

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

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. A. Domer

L. W. Hufham, Manager
Licensing and Risk Protection

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

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
QUESTIONABLE COMPRESSION FITTINGS ON INSTRUMENTATION TUBING
WBRD-50-390/85-43 AND WBRD-50-391/85-42
NCR WBN 6278
10 CFR 50.55(e)
INTERIM REPORT

Description of Deficiency

TVA has identified through its employee concern program various instances where compression fittings for tubing connections have been installed in a manner which does not agree with vendor installation instructions. The discrepancies noted are (1) tubing cuts were not deburred, (2) tubes were not bottomed out inside the fittings, (3) nuts did not completely cover threads, and (4) ferrules were unidentifiable, missing, or reversed.

The cause of this problem was determined to be the lack of site or upper tier procedures governing installation and inspection of these type fittings. At one time this activity was procedurally controlled at the site level by quality control procedure (QCP) 3.13 R0, "Installation, Inspection, and Documentation of Instrumentation Sensing Lines" under Standard Instruction 51, "Weld or Compression Fitting Inspection," Attachment E, entitled "Compression Fitting Process Control Operation Sheet." However, the control of this activity was cancelled by revision 2 of QCP 3.13.

Safety Implications

In general, without adherence to manufacturer's recommendations during installation, compression fittings may not totally seal which would result in a leaking connection. However, all "close ended" safety-related instrumentation tubing receive hydrostatic or pneumatic pressure testing. This testing eliminates any concern with the adequacy of the initial seal of the compression fittings. However, potential long-term concerns exist with the adequacy of the seal due to the possibility of the tube not being bottomed out in the fitting and the fitting nuts not being tightened sufficiently to completely cover the threads of its mount. Either situation has the potential for allowing vibrations to loosen the fitting and develop a leak. Also, burrs in instrumentation tubing would not be detected during pressure testing and could lead to an accumulation of "crud" and an eventual flow restriction. Tube leakage or flow restriction could cause errors in instrument readings of varying degrees depending on the instrument in question and the type of problem, and there is a potential that such instrumentation errors could adversely affect plant safety.

In the case of open-ended instrument tubing, drains and vent lines the lines are not pressure tested and any leakage due to inadequate fittings would be minimal as such leakage would not have any pressure behind it.