

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

February 12, 1981

SQRD-50-328/81-14



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:

SEQUOYAH NUCLEAR PLANT UNIT 2 - LEAKAGE OF METAL BELLOWS ON PRIMARY  
CONTAINMENT PENETRATION - SQRD-50-328/81-14 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector  
F. S. Cantrell on January 13, 1981, in accordance with 10 CFR 50.55(e)  
as NCR 2519. Enclosed is our final report.

If you have any questions, please get in touch with D. L. Lambert at  
FTS 857-2581.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager  
Nuclear Regulation and Safety

Enclosure

cc: Mr. Victor Stello, Director (Enclosure) ✓  
Office of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

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ENCLOSURE

SEQUOYAH NUCLEAR PLANT UNIT 2  
LEAKAGE OF METAL BELLOWS ON PRIMARY CONTAINMENT PENETRATION

SQRD-50-328/81-14

10 CFR 50.55(e)

FINAL REPORT

Description of Deficiency

The leakage rate of a metal bellows on primary containment penetration X-30, Azimuth 291°, elevation 697 feet, was found to be 60.4 standard cubic feet per hour when it should have been airtight. This leak rate test was performed by pressurizing through a test connection between the two single-ply bellows and measuring the rate of pressure loss. The test connection is used for test purposes only and is not qualified to maintain containment integrity. The leakage was determined to be on the internal bellows because no leakage or defects were evident on the outer one. This was verified by a localized leak test inside the penetration assembly. Leak rate tests for local penetrations as outlined by 10CFR50, Appendix J, are designed to periodically check the integrity of the containment pressure boundary. This piping penetration assembly, which includes the bellows, was tested by Tube Turns Division, member AL Metals Group, Allegheny Ludlum Resources, Incorporated, Louisville, Kentucky, before shipment and found to be airtight. The weld that attaches the bellows to the penetration assembly was believed to have been damaged by inadvertent grinding. Apparently, when attempting to grind the root on the adjacent weld, the weld on the bellows was ground by mistake.

Safety Implications

Had this leakage gone undetected, and had the outer bellows or test connection leaked, radioactivity in excess of levels claimed in the plant safety analysis could have been released to the atmosphere during a LOCA. This could have adversely affected the safety of the plant by jeopardizing the health and safety of plant personnel and the public.

Corrective Action

Due to difficulty of gaining access for repairing the weld on the internal bellows, a similar bellows of a greater diameter will be welded concentric with the original bellows. This will ensure containment pressure integrity and testing ability. Modifications should be complete by April 1, 1981.