TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

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January 8, 1982

WBRD-50-390/82-04
WBRD-50-391/82-04

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:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - FOAM SEALS IN MECHANICAL PIPE SLEEVES - WBRD-50-390/82-04, WBRD-50-391/82-04 - FIRST INTERIM REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. V. Crlenjak on December 4, 1981 in accordance with 10 CFR 50.55(e) as NCR WBN CEB 8118. Enclosed is our first interim report. We expect to submit our next report by February 24, 1982.

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

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager
Nuclear Regulation and Safety

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

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
FOAM SEALS IN MECHANICAL PIPE SLEEVES
WBRD-50-390/82-04, WBRD-50-391/82-04
10 CFR 50.55(e)
FIRST INTERIM REPORT

Description of Deficiency

Some wall penetration piping sleeves shown on TVA drawing series 47W470 and 47W471 have rigorously analyzed safety-related piping routed through them. Silicone sealants are provided between the pipe and sleeve at certain locations as shown on TVA drawing series 47W472. These seals have not been considered by the piping analyst for most cases and thereby could result in increases in pipe stresses and support loads for some situations. The maximum pipe movements at the sleeves may cause failure of the sealant to perform its intended design function as a pressure, water, radiation, and/or fire protection seal.

Interim Progress

TVA has conducted tests which show that the silicone foam is flexible in tension, compression, and shear. Test results and vendor physical data indicate the silicone foam will not tear or rupture for anticipated pipe movements. In cases where the pipe is not centered, the movement of the pipe could tear the seal locally; however, a complete loss of a seal through a penetration is not likely.

TVA is currently evaluating the effects of the silicone foam seals on the pipe as well as the ability of the seal to perform its intended function. Pipe movement data has been compiled for the evaluation.

Data from tests conducted initially by TVA on silicone foam seal indicated spring rates for the foam seal in tension, compression, and shear. It has been determined that these initial spring rates, determined from tests of a single pipe size, may not be realistic when applied to other pipe/sleeve sizes. Therefore, in order to obtain realistic spring rates, TVA initiated an extensive test of the silicone foam seals involving a range of pipe/sleeve sizes. TVA has obtained new spring rates from the test program.

Six analysis problems were selected for Sequoyah Nuclear Plant (see nonconformance report SQRD-50-328/81-30 for Sequoyah Nuclear Plant unit 2) that penetrate the shield building at critical elevations and have large pipe movements at the sleeve. Analysis of two of the six problems will be performed with new spring rates from the test program for evaluating Watts Bar Nuclear Plant. Results of this analysis will be provided in our next report.