



Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37375

March 15, 1994

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

Gentlemen:

In the Matter of ) Docket Nos. 50-327  
Tennessee Valley Authority ) 50-328

SEQUOYAH NUCLEAR PLANT (SQN) - NRC BULLETIN 90-01, SUPPLEMENT 1 - LOSS OF  
FILL-OIL IN TRANSMITTERS MANUFACTURED BY ROSEMOUNT, VERBAL REQUEST FOR  
ADDITIONAL INFORMATION (TAC NOS. 85442 AND 85443)

- References:
1. TVA letter to NRC dated March 4, 1993, "Sequoyah Nuclear Plant (SQN) - NRC Bulletin 90-01, Supplement 1 - Loss of Fill-Oil in Transmitters Manufactured by Rosemount"
  2. TVA letter to NRC dated December 4, 1992, "Sequoyah Nuclear Plant (SQN) - NRC Bulletin 90-01 - Loss of Fill-Oil in Transmitters Manufactured by Rosemount - Updated Response"
  3. TVA letter to NRC dated July 13, 1990, "Sequoyah Nuclear Plant (SQN) - NRC Bulletin 90-01 - Loss of Fill-Oil in Transmitters Manufactured by Rosemount"

The purpose of this letter is to provide a detailed description of the SQN Rosemount transmitter trending program as requested by NRC during a February 2, 1994, telephone conversation. The attached enclosure provides the requested program description.

In addition, as a result of further evaluation of the merits of continuing to trend certain Rosemount transmitters, TVA will no longer trend Flow Transmitters 1-FT-3-155, -163; 1 and 2-FT-72-13, -34. Flow Transmitter 1-FT-3-155 was replaced during the Unit 1 Cycle 6 refueling outage with a post-1989 transmitter. Flow Transmitter 1-FT-3-163 has

9403230325 940315  
PDR ADOCK 05000327  
g PDR

JE39 1/1

U.S. Nuclear Regulatory Commission

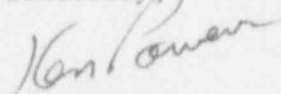
Page 2

March 15, 1994

surpassed its pound per square inch (psi) per month criteria with acceptable trend data; and in accordance with NRC Bulletin 90-01, Supplement 1, Section 1.e guidance, further trending is not required. Flow Transmitters 1 and 2-FT-72-13, -34 are in the containment spray system that is only pressurized during testing. The normal system operating pressure is less than 500 psi. Based on NRC Bulletin 90-01, Supplement 1, Section 1.f guidance, these transmitters will no longer be trended. Three transmitters will remain in the trending program: 1 and 2-FT-3-142 and 1-FT-3-147.

Please direct questions concerning this issue to W. C. Ludwig at (615) 843-7460.

Sincerely,



Ken Powers  
Site Vice President  
Sequoyah Nuclear Plant

Enclosure

cc (Enclosure):

Mr. D. E. LaBarge, Project Manager  
U.S. Nuclear Regulatory Commission  
One White Flint, North  
11555 Rockville Pike  
Rockville, Maryland 20852-2739

NRC Resident Inspector  
Sequoyah Nuclear Plant  
2600 Igou Ferry Road  
Soddy-Daisy, Tennessee 37379-3624

Regional Administrator  
U.S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30323-2711

ENCLOSURE

SEQUOYAH NUCLEAR PLANT (SQN) UNITS 1 AND 2  
RESPONSE TO NRC BULLETIN 90-01, SUPPLEMENT 1 --  
LOSS OF FILL-OIL IN TRANSMITTERS MANUFACTURED BY ROSEMOUNT,  
VERBAL REQUEST FOR ADDITIONAL INFORMATION

## Enclosure

The purpose of this enclosure is to provide a description of SQN's trending program for Rosemount Model 1153 transmitters.

The trending process used by SQN consists of baselining the transmitters to calibration data taken in calendar year 1985. This data was plotted as zero on the y axis being labeled "Deviation from Nominal Output." The calibration cycle (each calibration of transmitter) was plotted on the x axis. At the next calibration, the "as-found" calibration data was algebraically added to the baseline value and plotted as deviation from nominal output. This step was repeated for each of the five calibration values (4.00, 8.00, 12.00, 16.00, and 20.00 milliampere [mA]). Successive calibration cycles were plotted by factoring in the calibration adjustments so that each calibration value was referenced back to the baseline zero values. This resulted in a trend that showed absolute change of the transmitters after each calibration referenced to the 1985 baseline. The criteria used to determine when a transmitter should be changed out was three consecutive out of calibrations in the same direction of a magnitude that required readjustment of the transmitter to meet the as-left calibration acceptance criteria. As-left acceptance criteria contained in the surveillance instruction (SI) is  $4.00 \pm .04$  mA. Additionally, the as-found acceptance criteria found in the SI is  $4.00 \pm .46$  mA. At no time was the out of calibration as-found acceptance criteria violated.

The range code 5 transmitters used in the auxiliary feedwater system have a calibration range of 0 to 300 inches of water. Based on the Rosemount Technical Bulletin (TB) No. 4, the range down factor (RDF) equals 750 inches of water divided by 300 inches of water or 2.5. The published zero-drift limits in TB No. 4 are -0.8 percent and +1.45 percent upper range limit (URL). The true zero drift limit is then computed to be -2.0 percent and +3.63 percent. The most conservative case for these transmitters is the -2.0 percent zero drift limit. Since the data supplied in the TB No. 4 is for a 12-month cycle, the -2.0 percent zero drift limit must be multiplied by 1.5 as SQN uses an 18-month calibration cycle (18 months/12 months = 1.5). Therefore, for SQN, the zero drift rate computes to be -3.0 percent. The calibrated span for the SQN transmitters is 16 mA (20 - 4 mA). The acceptance criteria in engineering units for zero drift of calibrated span equate to 3.52 mA ( $4.0 - [.03 \times 16]$ ). The acceptance criteria in the SI for the as-found low limit at the zero point are 3.54 mA ( $4.00 \pm .46$  mA). A review of the calibration data for the auxiliary feedwater flow transmitters in question indicates that none of the transmitters exceeded the zero drift as-found acceptance criteria. The method of trending that SQN applies is more conservative than the method described in Rosemount's TB No. 4. It should be noted that if SQN had used the Rosemount methodology, Flow Transmitter 1-FT-3-155 would not have been replaced during the Unit 1 Cycle 6 refueling outage.