PECO ENERGY

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U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Subject: Peach Bottom Atomic Power Station, Units 2 and 3
Limerick Generating Station, Units 1 and 2
Supplemental Response to NRC Bulletin 90-01, Supplement 1,
"Loss of Fill-Oil in Transmitters Manufactured by Rosemount"

Gentlemen:

On March 9, 1990, the NRC issued Bulletin 90-01, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount," requesting that holders of operating licensees for nuclear power reactors promptly identify and take appropriate corrective actions for Rosemount Model 1153, Series B and D, and Model 1154 transmitters that may be or have the potential for leaking fill-oil. PECO Energy Company responded to this NRC Bulletin (NRCB) for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3, and Limerick Generating Station (LGS), Units 1 and 2, by letters dated July 13, 1990, October 16, 1990, and April 30, 1991.

On December 22, 1992, the NRC issued NRCB 90-01, Supplement 1, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount," to inform addresses of activities taken by the NRC and the industry in evaluating Rosemount transmitters, and to request licensees to take additional action to resolve the Rosemount transmitter loss of fill-oil issue. Supplement 1 to NRCB 90-01 requested that recipients review the information contained in the Supplement for applicability to their facilities and modify, as appropriate, their actions and enhanced monitoring programs as described in NRCB 90-01, Supplement 1. This Supplement also required that licensees provide a written response within 60 days after receipt. PECO Energy responded to NRCB 90-01, Supplement 1, for PBAPS, Units 2 and 3, and LGS, Units 1 and 2, by letter dated March 5, 1993, indicating that the Requested Actions delineated in Supplement 1 have been completed, and that the enhanced monitoring programs at PBAPS and LGS have been modified in response to NRCB 90-01, Supplement 1.

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NRCB 90-01, Supplement 1, Requested Action 1.c, requested that Boiling Water Reactor (BWR) licensees replace or monitor Rosemount transmitters within the scope of the Bulletin on a monthly basis using an enhanced surveillance monitoring program, until the transmitter reaches the appropriate psi-month threshold criterion recommended by Rosemount. However, the NRC indicated that on a case-by-case basis (with some exceptions), licensees may monitor transmitters using an enhanced surveillance program at least once per refueling cycle, provided the licensee afford sufficient justification based on transmitter performance in service and its intended safety function. This justification should show that a sufficiently high level of reliability for the function is provided by the redundancy or diversity of the applicable instrumentation and control systems. In addition, the NRC requested that licensees provide a copy of the justification for extending the enhanced surveillance program.

There are several transmitters installed at PBAPS and LGS that are included in the enhanced monitoring program in which only calibration data is collected, since during normal plant operations, these transmitters operate under saturated conditions and meaningful data cannot be obtained during the routine surveillances. These specific transmitters are monitored using zero drift trending of calibration data and extended span response checks (except those transmitters that are reverse calibrated).

Subsequently, the NRC conducted pilot inspections of the monitoring program being implemented at PBAPS and LGS in response to NRCB 90-01, and requested that we submit the appropriate technical justification for extending the enhanced surveillance monitoring program for the transmitters not being monitored on a monthly basis, as requested in NRCB 90-01, Supplement 1, Requested Action 1.c.

Therefore, in response to the NRC's request and as specified in NRC 90-01, Supplement 1, we are providing the following justification to support extending the enhanced surveillance program beyond the monthly test interval to once every refueling cycle for the following Rosemount transmitters designated below which are currently installed at PBAPS and LGS. This justification addresses the applicable transmitters installed at PBAPS and LGS which satisfy the classification criteria delineated in NRCB 90-01, Supplement 1.

PBAPS, Unit 2 and 3

Transmitters	System
LT-(2)(3)-2-3-73A-D	Nuclear Boiler Vessel Instrumentation

The A, B, C, and D transmitters, identified above, provide a signal corresponding to reactor pressure vessel water level for indication, and the A and B transmitters provide a signal corresponding to reactor pressure vessel water level in order to generate an interlock to prevent inadvertent operation of the containment spray/cooling during an accident condition until such time that sufficient reactor pressure vessel water level is restored (i.e., approximately 2/3 core coverage). Two (2) redundant trains provide containment spray/cooling capability. Containment spray/cooling is manually initiated and provisions are provided to override the low-level interlock.

Only the A and B transmitters provide information for automatic trip signals for containment spray/cooling. A sufficiently high level of reliability of the associated function is maintained and a high degree of confidence in detecting failure of a transmitter is afforded through a combination of transmitter calibration data monitoring, plant staff awareness of transmitter loss of fill-oil symptoms, demonstrated acceptable performance of the transmitters, and the overall performance and redundancy of the associated system.

Transmitter calibration data are monitored as discussed in our original response to Bulletin 90-01, submitted by letter dated July 13, 1990. The transmitter calibration data are evaluated to determine if any transmitters are exhibiting symptoms indicative of a loss of fill-oil. The transmitter calibration data is also evaluated to predict, based on historical performance, if any transmitter may exceed established criteria prior to the next scheduled surveillance. Plant personnel have been trained and have demonstrated a keen ability to identify potentially failed transmitters, based on sluggish response during transmitter surveillance. Consequently, we are confident that potential transmitter failures due to loss of fill-oil will be detected in a timely manner.

The actual calibration data trends for the four (4) transmitters identified above have been reviewed and no adverse trends indicative of a loss of fill-oil are evident. Each of the transmitters has been in service for approximately 40,000 psi-months. Maximum cumulative drift for each transmitter is less than half of the calculated drift limit. Consequently, the past performance of these transmitters indicates acceptable performance and transmitters exhibit no symptoms indicative of loss of fill-oil.

System redundancy is provided, since two (2) trains of containment spray/cooling provide this capability. Provisions to manually override the low-level signal and manually actuate containment spray/cooling are provided. As a result, the overall redundancy of the containment spray/cooling systems and the manual provisions included in the design, provide a high degree of reliability for the containment spray/cooling system capability.

LGS, Units 1 and 2

Transmitters	System
PDT-51-2N058A-D	Residual Heat Removal System - Low Pressure Coolant Injection
PT-40-2N051B, F, K, and P	Main Steam Isolation Valve Leakage Control System
PT-40-1N056	Main Steam Isolation Valve Leakage Control System
PT-40-2N056	Main Steam Isolation Valve Leakage Control System

The transmitters installed in the Low Pressure Coolant Injection (LPCI) system identified above, function to provide a permissive for the LPCI injection valve to open to support automatic actuation of the LPCI system, an Engineered Safety Feature (ESF). The transmitters installed in the Main Steam Isolation Valve (MSIV) Leakage Control System identified above, function to provide permissives for the manual actuation of the MSIV Leakage Control System. Therefore, these transmitters fall within the criteria specified in Requested Action 1.c of NRCB 90-01, Supplement 1. During normal plant operations, the output of these transmitters is driven to saturation and meaningful data cannot be obtained between routine surveillances.

A sufficiently high level of reliability of the associated actuation function is maintained and a high degree of confidence in detecting the failure is provided through a combination of transmitter calibration data monitoring, plant monitoring, plant staff awareness of transmitter loss of fill-oil symptoms, demonstrated acceptance performance of the transmitters, and the overall performance and redundancy of the associated systems.

Transmitter calibration data are monitored as discussed in our original response to Bulletin 90-01, submitted by letter dated July 13, 1990. The transmitter calibration data are evaluated to determine if the transmitters are exhibiting symptoms indicative of a loss of fill-oil. The transmitter calibration data are also evaluated to predict, based on historical performance, if the transmitter may exceed established criteria prior to the next scheduled surveillance. Plant personnel have been trained and have demonstrated a keen ability to identify potentially failed transmitters, based on sluggish response during transmitter surveillance. In addition, the trip units for the associated channels are observed daily during operator rounds to verify expected operation of the channel. Gross failure of the pressure transmitters can be detected during operator rounds. Therefore, we are confident that potential transmitter failure due to loss of fill-oil will be detected in a timely manner.

The actual calibration data trends for the ten (10) transmitters identified above have been reviewed and no adverse trends indicative of a loss of fill-oil are evident. Each of the transmitters has been in service for approximately 60,000 psi-months. Maximum cumulative drift for each transmitter is approximately half of the calculated drift limit. Consequently, the past performance of these transmitters indicate acceptable performance and these transmitters exhibit no symptoms indicative of loss of fill-oil.

Four (4) trains of LPCI and two (2) trains of the low pressure Core Spray (CS) system are available to provide reactor core cooling capability. A minimum of one (1) train of CS or one (1) train of LPCI will provide the necessary core cooling capability. Consequently, the overall redundancy of these systems provides a high degree of reliability to ensure automatic actuation of the low pressure core cooling capability (i.e., LPCI and CS).

Five (5) trains of the MSIV Leakage Control System are provided to direct leakage past closed MSIVs to the Standby Gas Treatment System (SGTS). One (1) train is provided for each inboard MSIV, and one (1) is provided for all outboard MSIVs. As a result, the overall redundancy of the MSIV Leakage Control System provides a high degree of reliability for manual actuation of the MSIV Leakage Control System.

In summary, we are confident that the enhanced monitoring program being implemented at PBAPS and LGS is capable of providing the necessary operational data for predicting and detecting whether or not any Rosemount transmitter included in the program is experiencing symptoms indicative of a loss of fill-oil.

If you have any questions or require additional information, please do not hesitate to contact us.

Very truly yours,

G. A. Hunger, Jr.

G. A. Hunger, Jr.
Director - Licensing

cc: T. T. Martin, Administrator, USNRC, Region I
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