



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

September 5, 1995

Mr. Roger A. Newton
Westinghouse Owners Group Chairman
Wisconsin Electric Power Company
231 West Michigan Street
Milwaukee, WI 53201

SUBJECT: REVIEW OF WESTINGHOUSE ELECTRIC CORPORATION TOPICAL REPORT WCAP-13632, REVISION 2, "ELIMINATION OF PRESSURE SENSOR RESPONSE TIME TESTING REQUIREMENTS," DATED AUGUST 1995 - WESTINGHOUSE OWNERS GROUP PROGRAM NUHP-3040, REVISION 1

Dear Mr. Newton:

The NRC staff has completed its review of the subject topical report prepared by Westinghouse Electric Corporation dated August 1995. The enclosure provides the staff's Safety Evaluation Report. The topical report describes Westinghouse Owners Group Program NUHP-3040, Revision 1, which was completed as an industry effort to demonstrate that periodic response time testing (RTT) requirements for selected pressure and differential pressure sensors in Reactor Trip System (RTS) and Engineered Safety Features Actuation System (ESFAS) channels could be eliminated. Upon eliminating sensor RTT requirements, the total RTS or ESFAS channel response time would be verified by summing an allocated sensor response time with the measured response time of the remainder of the channel.

Based on its review of the information presented in WCAP-13632, Revision 2, the staff has concluded that any sensor failure that significantly degrades sensor response time can be detected during the performance of other surveillance tests, principally calibration. Accordingly, the staff concludes that the performance of periodic RTT for the selected pressure and differential pressure sensors identified in the topical report can be eliminated from Technical Specifications (TS) and that allocated sensor response times may be used to verify acceptable RTS and ESFAS channel response times. Therefore, the staff accepts WCAP-13632, Revision 2, for reference in license amendment applications for all Westinghouse pressurized water reactors with the conditions discussed below.

When submitting plant-specific license amendment (TS change) requests, licensees must confirm the applicability of the generic analysis of WCAP-13632, Revision 2, to their plant, and in addition to the request as shown in Appendix B of the WCAP report and the TS markup tables as shown in Appendix A, licensees must take the following actions:

- (a) Perform a hydraulic RTT prior to installation of a new transmitter/switch or following refurbishment of the transmitter/switch (e.g., sensor cell or variable damping components) to determine an initial sensor-specific response time value.

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- (b) For transmitters and switches that use capillary tubes, perform a RTT after initial installation and after any maintenance or modification activity that could damage the capillary tubes.
- (c) If variable damping is used, implement a method to assure that the potentiometer is at the required setting and cannot be inadvertently changed or perform hydraulic RTT of the sensor following each calibration.
- (d) Perform periodic drift monitoring of all Model 1151, 1152, 1153, and 1154 Rosemount pressure and differential pressure transmitters, for which RTT elimination is proposed, in accordance with the guidance contained in Rosemount Technical Bulletin No. 4 and continue to remain in full compliance with any prior commitments to Bulletin 90-01, Supplement 1, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount." As an alternative to performing periodic drift monitoring of Rosemount transmitters, licensees may complete the following actions:
 - (1) ensure that operators and technicians are aware of the Rosemount transmitter loss of fill-oil issue and make provisions to ensure that technicians monitor for sensor response time degradation during the performance of calibrations and functional tests of these transmitters, and
 - (2) review and revise surveillance testing procedures, if necessary, to ensure that calibrations are being performed using equipment designed to provide a step function or fast ramp in the process variable and that calibrations and functional tests are being performed in a manner that allows simultaneous monitoring of both the input and output response of the transmitter under test, thus allowing, with reasonable assurance, the recognition of significant response time degradation.

Should you have any questions or wish further clarification, please call me at (301) 415-1004, or John Ganiere at (301) 415-2921.

Sincerely,



Bruce A. Boger, Director
Division of Reactor Controls
and Human Factors
Office of Nuclear Reactor Regulation

Enclosure: As stated

cc: D. Miller, Westinghouse Electric
R. C. Howard, Westinghouse Electric

- (b) For transmitters and switches that use capillary tubes, perform a RTT after initial installation and after any maintenance or modification activity that could damage the capillary tubes.
- (c) If variable damping is used, implement a method to assure that the potentiometer is at the required setting and cannot be inadvertently changed or perform hydraulic RTT of the sensor following each calibration.
- (d) Perform periodic drift monitoring of all Model 1151, 1152, 1153, and 1154 Rosemount pressure and differential pressure transmitters, for which RTT elimination is proposed, in accordance with the guidance contained in Rosemount Technical Bulletin No. 4 and continue to remain in full compliance with any prior commitments to Bulletin 90-01, Supplement 1, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount." As an alternative to performing periodic drift monitoring of Rosemount transmitters, licensees may complete the following actions: (1) ensure that operators and technicians are aware of the Rosemount transmitter loss of fill-oil issue and make provisions to ensure that technicians monitor for sensor response time degradation during the performance of calibrations and functional tests of these transmitters, and (2) review and revise surveillance testing procedures, if necessary, to ensure that calibrations are being performed using equipment designed to provide a step function or fast ramp in the process variable and that calibrations and functional tests are being performed in a manner that allows simultaneous monitoring of both the input and output response of the transmitter under test, thus allowing, with reasonable assurance, the recognition of significant response time degradation.

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R. C. Howard, Westinghouse Electric
B. Siegel (O-14 H25)

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- (b) For transmitters and switches that use capillary tubes, perform a RTT after initial installation and after any maintenance or modification activity that could damage the capillary tubes.
- (c) If variable damping is used, implement a method to assure that the potentiometer is at the required setting and cannot be inadvertently changed or perform hydraulic RTT of the sensor following each calibration.
- (d) Perform periodic drift monitoring of all Model 1151, 1152, 1153, and 1154 Rosemount pressure and differential pressure transmitters, for which RTT elimination is proposed, in accordance with the guidance contained in Rosemount Technical Bulletin No. 4 and continue to remain in full compliance with any prior commitments to Bulletin 90-01, Supplement 1, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount." As an alternative to performing periodic drift monitoring of Rosemount transmitters, licensees may complete the following actions: (1) ensure that operators and technicians are aware of the Rosemount transmitter loss of fill-oil issue and make provisions to ensure that technicians monitor for sensor response time degradation during the performance of calibrations and functional tests of these transmitters, and (2) review and revise surveillance testing procedures, if necessary, to ensure that calibrations are being performed using equipment designed to provide a step function or fast ramp in the process variable and that calibrations and functional tests are being performed in a manner that allows simultaneous monitoring of both the input and output response of the transmitter under test, thus allowing, with reasonable assurance, the recognition of significant response time degradation.

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