Westinghouse Electric Corporation
Water Reactor Divisions
Box 355
Pittsburgh Pennsylvania 15230

NS-EPR-2837

October 13, 1983

Mr. R. C. DeYoung, Director
Division of Inspection & Enforcement
U.S. Nuclear Regulatory Commission
Phillips Building
7920 Norfolk Avenue
Bethesda, Maryland 20014

Dear Mr. DeYoung:

This is to confirm the telephone conversation of October 13, 1983, between Messrs: J. D. McAdoo and R. B. Miller of Westinghouse and Mr. I. Villalva of the NRC. In that conversation, Westinghouse notified the NRC of a reportable item associated with Westinghouse procured Barton transmitters. This item was reported under 10CFR 21 for three operating plants (Indian Point 2, D. C. Cook 1, and Trojan) as discussed below and Westinghouse has advised these NSSS utility customers.

Background and Description

Based on a report of excessive errors at abnormal temperature conditions by one of their customers, Barton performed static temperature calibration checks on several transmitters. As a result of this investigation, Barton discovered excessive errors at both abnormal and accident temperature conditions and determined two separate causes. Barton has previously reported this to the NRC.

Barton's calibration technique for temperature compensation was found to result in previously undefined errors at both abnormal and accident temperatures. As part of the compensation process the zero output of the transmitter was elevated in order to be able to observe negative errors. This procedure introduced false temperature errors which were then incorporated into the transmitter compensation. The units were not checked at the elevated temperatures after the original zero was restored and therefore they were shipped with excessive temperature compensation. The evaluation conducted by Barton showed that the resultant error would always be positive. This compensation technique results in an overall change in the specified accuracy that was assumed for these transmitters. The accuracy deviation that results from this procedure potentially affects safety-related transmitters procured by Westinghouse from Barton Lots 1 thru 7.

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During the investigation process, Barton also discovered an electrical leakage path thru the wiper arm and shaft of the zero and span calibration potentiometers to the instrument case. This path only creates significant errors at high temperatures and is only of concern during accident conditions. Transmitters procured by Westinghouse from Barton Lots 1, 2, 4, 5, and 7 are potentially affected.

Immediate Corrective Action

Based on static calibration data received from Barton on a sample of approximately eighty transmitters representing Lots 2, 4, 5, and 7, Westinghouse has calculated expected error deviations and evaluated the effect of any additional deviation on functions performed by these transmitters. As a result of this evaluation, and after incorporating all instrument errors, it was determined that the set point for the pressurizer pressure safety injection function for Indian Point 2, D. C. Cook 1, and Trojan was not set far enough above the zero point of the transmitter range to ensure that the function would be performed. The new set point recommended for all three plants is 1829 psig.

Our evaluation to date indicates that other plants utilizing Barton transmitters in Lots 2 thru 7 have adequate margin in their setpoints to absorb the additional errors identified during this study. The results of these additional evaluations will be reported to the Staff as appropriate upon their completion.

Future Corrective Action

Barton is already developing a hardware modification using an insulating washer to interrupt the path of electrical leakage thru the potentiometers. Based on the nature of this problem and the fact that it is not possible to test each installed transmitter, Westinghouse recommends that this modification be incorporated. However, data from a relatively large sample size indicates that this modification does not have to be completed immediately. Since Westinghouse is working with Barton to establish a representative model which may make it possible for the calibration technique error to be corrected in the field if necessary, we will defer any modifications until all corrective actions can be implemented. Slightly different calibration methods were used for Lot 1 and Westinghouse has requested additional information from Barton in order to evaluate any potential errors associated with the Lot 1 devices. At this point in time Westinghouse does not have sufficient information to determine what impact, if any, these issues will have on Lot 1 devices. The results of this evaluation will be forwarded to you as necessary.

If you require additional information on these subjects, please contact R. B. Miller (412-374-5217) or C. G. Draughon (412-374-5761) of my staff.

Very truly yours,

for E. P. Rahe, Manager
Nuclear Safety Department

/KEG
Attachment
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