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SUBJECT: Forwards response to request for addl info re instrument setpoint methodology from sys based instrumentation & control insp.

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PRIORITY 1

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PO Box 16631
Columbus, OH 43216

INDIANA
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November 1, 1995

AEP:NRC:1184H3

Docket Nos.: 50-315
50-316

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

Gentlemen:

Donald C. Cook Nuclear Plant Units 1 and 2
ADDITIONAL QUESTIONS DATED OCTOBER 5, 1995,
RELATED TO INSTRUMENT SETPOINT METHODOLOGY FROM SYSTEM
BASED INSTRUMENTATION AND CONTROL INSPECTION

On May 11, 1995, we met at Cook Nuclear Plant with NRC (NRR and Region III) personnel, to discuss unresolved items from our 1993 System Based Instrumentation and Control Inspection (SBICI). Following that meeting, we were requested to submit additional information, which was provided in our letter AEP:NRC:1184H2, dated July 7, 1995. Subsequently, we received an additional request for information dated October 5, 1995. The attachments to this letter contain our response to this additional request.

Sincerely,

E. E. Fitzpatrick
Vice President

plt

Attachments

cc: A. A. Blind
G. Charnoff
H. J. Miller
NFEM Section Chief
NRC Resident Inspector - Bridgman
J. R. Padgett

A001
1/1

ATTACHMENT 1 TO AEP:NRC:1184H3

RESPONSE TO OCTOBER 5, 1995, ADDITIONAL
QUESTIONS RELATED TO INSTRUMENT
SETPOINT METHODOLOGY FROM SYSTEM
BASED INSTRUMENTATION AND CONTROL INSPECTION

Question 1: Inspection item 3.2.b. Provide a discussion on the lack of environmental allowances for steam flow transmitters located inside containment. Are the steam flow transmitters for main steam flow high/feedwater flow mismatch and steam flow high trips the same transmitters?

Response: Attachment 3 of our letter AEP:NRC:1184H2 provided a discussion on the exclusion of environmental allowances for those functional loops considered to be backup or secondary, for example, the main steam flow/feedwater flow mismatch function. As discussed in that letter, inclusion of adverse environmental allowances for backup trips is not required. However, Westinghouse evaluated the Anticipated Operational Occurrences (AOO) and Design Basis Events (DBE) listed in Chapter 14 of the Cook Nuclear Plant Updated FSAR with respect to primary and secondary system response versus the inclusion of EA terms. For each AOO or DBE whose primary system response is required to function in adverse environmental conditions, one of two evaluation conclusions was reached:

1) There exists at least one diverse protection function which is environmentally qualified and includes an EA term (evaluated to be sufficient in magnitude) in the setpoint calculation, or

2) There exists at least one diverse protection function which is located outside of the adversely affected environs and thus does not require an EA term in the setpoint uncertainty calculation.

As indicated in Attachment 3 of AEP:NRC:1184H2, steam flow in two steamlines - high coincident with low steamline pressure provides the primary protection function for the steamline break inside containment core response event for unit 1. For unit 2, the function is provided by low steamline pressure alone. The transmitters providing the high steam flow input are located inside containment. An EA term is included in the setpoint calculation. (The transmitters providing the low steamline pressure signal are located outside containment.)

The transmitters providing the high steam flow trips are the same ones that feed the steam flow/feedwater flow mismatch trips.

Question 2: Inspection report number 3.6.3. Confirm that RWST level channels have EA terms incorporated (cable IR effects). ECP-RPC-09-Calc. No. 1 indicates that a cable IR term is included.

Response: Cable IR effects are included in the calculations for RWST level channels.

Question 3: Inspection item 3.3.2. Condensate Storage Tank level instrumentation is stated by the licensee as being Foxboro model N-E13DM transmitters and the EQ report for these transmitters was given to the staff. Are all CWST level transmitters model N-E13DM or are other similar models installed? Does the qualification report submitted to the staff bound these other transmitter models as well?

Response: There are two electronic level transmitters installed on the Condensate Storage Tank for each unit. One of the transmitters, tag 1-CLI-114 for unit 1 (or 2-CLI-114 for unit 2), is a Foxboro Model N-E13DM and is classified as a Regulatory Guide 1.97 Category 1 transmitter. The other transmitter, tag 1-CLI-113 for unit 1 (or 2-CLI-113 for unit 2), is a Foxboro Model E13DM and is classified as a Regulatory Guide 1.97 Category 3 transmitter.

The qualification report submitted in our previous letter AEP:NRC:1184H2 was for Model N-E13DM transmitters. Seismic testing of the Model E13DM transmitter is documented in Appendix F of the July 1975 Westinghouse report WCAP 8541 (non-proprietary), entitled "Topical Report - Seismic and Environmental Testing of Foxboro Transmitters." Per this report, maximum calibration shifts following individual seismic runs of zero, span, and the five check points were generally less than 0.5%, which is the Reference Accuracy of the Model E13DM transmitter. (One test had a calibration shift in excess of the reference accuracy. However,

this was a test conducted at 10g, which is significantly beyond the required seismic range.) Pertinent pages from WCAP 8541 are included in Attachment 2.

ATTACHMENT 2 TO AEP:NRC:1184H3

PAGES FROM WCAP 8541

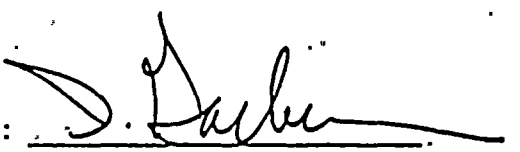
WESTINGHOUSE CLASS 3

WCAP-8541

TOPICAL REPORT
SEISMIC AND ENVIRONMENTAL TESTING OF FOXBORO TRANSMITTERS

R. A. Kraszewski
R. B. Miller

July 1975

APPROVED: 

I. Garber, Manager
Process Control Systems III

WESTINGHOUSE ELECTRIC CORPORATION
Nuclear Energy Systems
P. O. Box 355
Pittsburgh, Pennsylvania 15230

APPENDIX F

TEST REPORT NO. T3-1091

Seismic Vibration Test of E-10 Series Transmitters

TEST REPORT NO. T3-1091

Seismic Vibration Test
of
E10 Series Transmitters
Tested at
Acton Environmental Testing Corp.
Acton, Ma.

Requested by: J. C. Childs
Dept. 370

K. G. McC

Reviewed by:
Kenneth McCasland
Supervisor
Test & Evaluation Laboratory
Dept. 383

John A. Sears

Report by: John A. Sears
Sr. Test and Evaluation Eng.
and
Richard Ramsell R.D.R.
Test Technician
of
Dept. 383
Test & Evaluation Laboratory
December, 1973

3.0 Summary and Conclusions

The four test transmitters operated without loss of function during all tests. The pressure integrity of all transmitters was maintained thru all tests.

Test results by unit are as follows:

E13DM

Maximum calibration shifts following individual seismic runs of zero, span and the five check points were generally <0.5%.

Output shifts in any plane during any test acceleration level were generally <-7.2%. Output bandwidths were ≤7.0% in any plane or acceleration level.

Visual examination of the transmitter after all tests found no loose parts or screws.

E13DH

Calibration shifts of zero and span were <4.2 and -0.7% respectively, which were greater than those of the other units tested. Zero shifts after the 3.5 and 5.0g tests were larger than after the 10g tests which were done with a new force motor assembly. It is possible that a crack found after a 10g test in the vertical plane occurred during lower level tests. Although the force motor assembly was loose after the 10g vertical test, the unit still functioned but with a large zero shift. (See Comment 4 for further discussion.)

Most output shifts during the 3.5 and 5.0g sine beat tests were <5.0% with bandwidths <10.0%. Output shifts during the 10g sine beat test were -12.4% and bandwidths <9.0% as obtained with a new force motor assembly.

E11GM

Maximum calibration shifts following individual seismic runs were <0.3% for all planes and acceleration levels.

Output shifts were <6.0% and bandwidths <9.5% during seismic runs.

No loose parts or screws were found on visual inspection after all tests.

E11GH

The maximum calibration shifts following individual seismic runs were 0.6% or less at any level.

Maximum output shift during resonance survey was 2.0% and the maximum bandwidth was 16%. The maximum output shifts for the sine beat tests were 23% or less and bandwidths of 50% during seismic runs.