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SUBJECT: Forwards response to 970326 RAI re plant raceway/fire stop configuration in response to concerns for GL-92-08, "Thermo-Lag 330-1 Fire Barriers."

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INDIANA MICHIGAN POWER

May 21, 1997

AEP:NRC:0692DM

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
RESPONSE TO GENERIC LETTER 92-08 (TAC NOS. M85538
AND M85539) THERMO-LAG 330-1 FIRE BARRIERS
REQUEST FOR ADDITIONAL INFORMATION

In our letter dated December 27, 1996 (AEP:NRC:692DB), we informed the NRC that corrective actions in response to the concerns identified in NRC generic letter 92-08, and subsequent requests for additional information, have been completed at Cook Nuclear Plant. By letter dated March 26, 1997, your staff requested additional information concerning how our raceway/fire stop configuration, described in AEP:NRC:692DB, meets the NRC fire protection requirements and Cook Nuclear Plant licensing and design bases.

Our response to the request for additional information is contained in the attachments. Attachment 1 describes our use of fire stops for the 20 foot separation boundary. Attachments 2 and 3 contain the technical evaluations for auxiliary building fire zones 6M and 6S, and fire zones 44N and 44S, respectively. Attachments 4 and 5 contain design detail drawings 2-1434R-5 and 2-1419R-6, respectively.

Sincerely,

E E Fitzpatrick

E. E. Fitzpatrick
Vice President

vlb

Attachments

cc: A. A. Blind
A. B. Beach
MDEQ - DW & RDP
NRC Resident Inspector
J. R. Padgett

A029 1/1

Drawings: Located in Central Files

ATTACHMENT 1 TO AEP:NRC:0692DM

FIRE STOPS FOR 20 FOOT SEPARATION BOUNDARY

In the NRC RAI dated March 26, 1997, the following request was made.

> "Additional information is required to resolve the staff's questions and review the new configuration. Specifically, please address, in detail, how the raceway/fire stop configuration described in the letter of December 27, 1996, meets NRC fire protection requirements and the D.C. Cook licensing and design bases. In this discussion, identify any exemptions from Section III.G or Appendix R to 10 CFR Part 50 that have been requested and granted for the fire stop configurations described in the letter of December 27, 1996. In addition, submit the design details of the fire stops, the drawings showing the locations of the fire stops and fire areas where they are credited, and the engineering analyses that support achieving a 20 foot separation using cable tray fire stops."

NRC/Fire Protection Requirements and Cook Nuclear Plant Licensing and Design Bases

The safe shutdown capability assessment (SSCA) was created to address compliance with 10 CFR 50, appendix R, section III.G. Appendix R, section III.G.2.(b) provides one means of ensuring that one of the redundant trains is free of fire damage. This section states, "[S]eparation of cables and equipment and associated non-safety circuits of redundant trains by a horizontal distance of more than 20 feet with no intervening combustible or fire hazards. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area;...."

Rev. 0 of the SSCA, dated March 1983, was submitted to the NRC on March 31, 1983, by our letter AEP:NRC:0692E. This submittal contained sections 8.3.1 and 8.16.1, that described two locations where section III.G.2.(b) was utilized. In both situations, the SSCA stated that certain "open cable trays traversing the zone from the north side to the south side will be appropriately fire stopped to prevent fire propagation from one section of the fire zone to the other " Rev. 1 to the SSCA was submitted on March 20, 1987, by AEP:NRC:0692AZ. There was no change to the statements in sections 8.3.1 and 8.16.1 quoted above. Generic letter (GL) 86-10 contains guidance regarding the meaning and intent of section III.G.2.(b) wording for intervening combustibles and exemption requests. Based on the information in GL 86-10, the cables in the trays without some form of non-combustible covering are considered intervening combustibles. However, because the use of fire stops met our original licensing bases (SSCA) and predated GL 86-10, we did not believe the installation of additional fire stops warranted an exemption request relative to the subject fire stop configuration.

Design Details

Attachments 4 and 5 are drawings that show the two locations where fire stops are provided in accordance with section III.G.2.(b). These drawings show the cable trays located in the subject 20 foot separation spaces, the location of the fire stops on the trays, details of the fire stops, and fire zone locations.

These drawings have details showing extensions added to the sides of certain trays. The following is provided to clarify why and how these extensions were added. For some control cable installations, additional space was needed for proper installation of the silicone

foam and spreading of the cables. The added space is provided by sheet metal extensions. In attachment 4, these extensions are shown on drawing 2-1419R-6 in details K8, M8, F9, H9, K9 and M9, and in attachment 5 on drawing 2-1434R-5, they are shown in details J2 and L2. For these installations, the sides of the raceway/fire stop configurations have been extended as shown. This design detail is not applicable to power cable trays. The silicone foam is entirely enclosed between the metal housing and the damming material. The damming material at the ends of the silicone foam reservoir separates the control cables. As the silicone foam expands and fills the enclosed space, it also separates the control cables.

Engineering Analyses That Support Achieving a 20 Foot Separation Using Cable Tray Fire Stops

Attachments 2 and 3 are technical evaluations 11.42 and 11.43 respectively. At the end of each of the technical evaluations there is a conclusion section. That section provides a summary of the defense-in-depth that leads to the conclusion that a fire on either side of the subject 20 foot separation spaces will not spread to the other side. This summary does not take credit for other attributes such as the enclosed (control cable) trays and the small quantity of cables, ranging from 3 to 20, in the open (power cable) trays, both of which further contribute to minimizing the impact of the intervening combustibles within the designated 20 foot spaces.

During preparation of this response, it was noticed that the title and purpose of these technical evaluations may need clarification. Appendix R section III.G.2.(b) was paraphrased and contains the phrase "with no intervening combustibles". We agree that the cables under discussion are intervening combustibles. However, these technical evaluations evaluate the ability of the "twenty foot wide separation space" to prevent the spread of fire between fire zones and to maintain safe shutdown capability for both units.

Three differences between the current design/procedures and the description in the technical evaluations were noted. All three differences have either no impact or they enhance the described situation. The three differences are: 1) the boundaries have shifted slightly from those described in the evaluations and shown on the sketches attached to the evaluations (no impact); 2) the fire loadings have been reduced because of thermo-lag removal (enhancement); and 3) the daily tour is being upgraded to a procedure versus a guideline (enhancement). These differences have no significant impact on the evaluations.

Summary

The SSCA (rev. 0 and 1), submitted to the NRC, stated that a commitment to meet appendix R, section III.G.2.(b) requirements at two locations would be accomplished by providing fire stops in cable trays traversing the separation space. No commitment was made to provide a covering of the intervening combustibles. The thermo-lag was believed to be a non-combustible wrapping and was added to some cable trays traversing the separation space. When the thermo-lag was removed, the cable between the fire stops became an intervening combustible. Because our licensing bases use of fire stops predated GL 86-10 guidance, we believed that an exemption was not required. The safe shutdown impact of the use of fire stops is contained in the technical evaluations prepared for

these locations. These technical evaluations show that the intent of appendix R, section III.G.2.(b) has been met.

ATTACHMENT 2 TO AEP:NRC:0692DM

TECHNICAL EVALUATION FOR AUXILIARY BUILDING
FIRE ZONES 6M AND 6S