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October 8, 1984
EF2-69718

Mr. James G. Keppler
Regional Administrator
Region III
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Dear Mr. Keppler:

Reference: (1) Fermi 2
NRC Docket No. 50-341

(2) Letter, D. A. Wells to J. G. Keppler, December 5, 1983, EF2-66482

(3) Letter, W. H. Jens to J. G. Keppler, August 21, 1984, EF2-69695

Subject: Amended Report of 10CFR50.55(e) Item 105 "Thermal Separation Criteria Violations"

This letter amends Reference (3), Detroit Edison's final report of 10CFR50.55(e), Item 105, "Thermal Separation Criteria Violations." The additional information requested by NRC Region III has been incorporated into this amended final report.

Description of Deficiency

Edison Specification 3071-33 requires a minimum separation of 12 inches for conduits and trays crossing a single insulated process steam pipe. Crossing multiple insulated steam pipes or running parallel to a single insulated steam pipe is to be avoided whenever possible; however, if not avoidable a four foot separation is required. Contrary to specification requirements, the required separation was not maintained in some cases. This was discovered by Quality Control during an electrical inspection in the steam tunnel.

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Analysis of Safety Implications

In situations where steam pipes are too close to electrical conduits and trays, localized high temperatures can result in the cable. These high temperatures can affect the electrical characteristics of the cable and may result in premature degradation of cable insulation.

Corrective Action

To disposition violations in the main steam tunnel of the cable thermal separation criteria in Specification 3071-33, the Detroit Edison Engineering Research Department developed methods to permit the evaluation of each violation on a case by case basis. This method consisted of calculating curves showing the temperature rise of a cable as a function of: pipe surface temperature, the separation between the pipe surface and conduit or tray surface, and the amount and type of pipe insulation. Using these curves along with the specific pipe surface temperature and the allowable temperature rise of the cable,the minimum required separation was determined for each identified violation of the specification.

In the inspection of the main steam tunnel, 129 violations of the thermal separation section of specification 3071-33 were identified and evaluated in DDR E-12051. Using the methods described above, all but one case were found to be acceptable. The single unacceptable conduit was rerouted.

Based on the results of the inspection of the main steam tunnel, Edison determined that the potential for similar deficiencies existed in the Drywell. Edison initiated a walkdown of the Drywell using special procedure, Number 7.39, "Inspection Requirements for Drywell Thermal Separation Between Electrical Components and Hot Mechanical Components." This inspection used DCN 10060 to Specification 3071-33 as the acceptance criteria. This DCN contained a table that provided minimum separation as a function of the system pipe diameter. This DCN permitted the acceptance of cable separations that were more restrictive than the separation which would be permitted by the calculational method, similar to that described above, but less restrictive than the single value specified in the original specification.

In the drywell, 855 violations of the criteria in DCN 10060 were identified and evaluated in DDR's E-13079, E-13080 and E-13083. Individual determinations using similar methods used for the steam tunnel violations were performed to evaluate each of these violations of DCN 10060. As a result, 106 cases required that conduit be rerouted; 230 cases were dispositioned by the addition of thermal shielding;and 519 cases were found to be acceptable.

Specific descriptions of each violation and its disposition are available for inspection at the Fermi 2 site.

If you have questions regarding this matter, please contact Mr. Lewis Bregni at (313) 586-5083.

Sincerely,

Wayne H. Jens

cc: P. M. Byron
R. C. DeYoung
R. C. Knop