PMB

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June 4, 1984
EF2-68549

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, W. H. Jens to J. G. Keppler,
May 16, 1984, EF2-68536

Subject: Interim Report of 10CFR50.55(e) Item 126
"Underrated Terminal Blocks in
Limitorque Valve Operators"

On May 4, 1984, Detroit Edison's Mr. L. P. Bregni, Engineer - Licensing, telephoned Mr. R. C. Knop of the NRC Region III to report a potential deficiency concerning underrated motor terminal blocks manufactured by Beau Products installed in some Limitorque valve operators at Fermi 2.

Description of Deficiency

Detroit Edison first identified the use of Beau Products No. 76000 series terminal blocks as a result of an inspection program for all NUREG 0588 Appendix E, Category 2A and 2B Limitorque operators. There are eighty-eight (88) such operators with thirteen inside containment and seventy-five outside containment. This inspection program was implemented as the corrective action for a previously reported deficiency, 10CFR50.55(e) Item 125 "Environmentally Unqualified Terminal Blocks in Limitorque Valve Operators". This item was documented in a final report (Reference 2) on May 6, 1984.

The Beau terminal blocks were found in four SMC-04 Limitorque operators located outside primary containment. The terminal blocks were being used in 480V AC motor terminations, but according to the Beau Products catalogue have an Underwriters Laboratory (UL) rating of 150V AC. This lower rating is based on creepage and clearance distances for Class C General Industrial terminal block applications as delineated in UL Standard 1059.

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The manufacturer of the terminal blocks has been contacted and dielectric strength testing values have been identified based on the manufacturer's testing. The tested dielectric strength is 10,500 volts rms between terminal points and is greater than 10,500 volts rms between terminal points and ground. This information provides partial confidence that the terminal blocks will perform in their application. However, dielectric testing values are influenced by such environmental conditions as temperature and humidity.

Analysis of Safety Implications

The concern with these terminal blocks is the UL rating of 150 volts rms versus their application as motor terminal blocks which have a 480 volt potential phase to phase, and 277 volt potential phase to ground. Both of these values are greater than the UL rating. There is a potential for electrical shorting which could result in the failure of the motor to operate when required. Failure of the motor to operate could compromise the function of the safety system of which the valve is an integral part.

Corrective Action

All Beau Products 76000 series terminal blocks found during the inspection of the eighty-eight Limitorque operators discussed above will be replaced with environmentally qualified parts which meet the proper electrical requirements. To date, the inspection has been completed for the thirteen inside primary containment Limitorque operators and no Beau Products terminal blocks were identified. Thirty-two out of seventy-five Limitorque operators outside of primary containment have been inspected. Of these, four were found to contain the Beau Products 76000 series terminal block.

The terminal blocks will also be evaluated for mild environment applications.

We will provide another report on this item, either interim or final, when additional information is available. If you have questions concerning this matter, please contact Mr. Lewis P. Bregni, (313) 586-5083.

Sincerly,

Wayne H Jens

cc: Mr. P. M. Byron
Mr. R. C. DeYoung
Mr. R. C. Knop
Mr. M. D. Lynch
Mr. A. S. Masciantonio