Albert F. Kaiser President

PDR



February 22, 1990

Mr. Carl Berlinger, Branch Chief Office of Generic Communications U.S. Nuclear Regulatory Commission Washington, D.C. 20555

Subject: 10CFR Part 21 Report ABB 27/59 Relay Catalog Series 211L

Gentlemen:

An ABB 27/59 Relay (Catalog No. 211L1175) was returned by CEI Perry Nuclear Station for evaluation. Examination has revealed that six (6) solder connections, where the leads from three (3) wire wound 3 watt resistors connect to the printed wiring runs on the bottom of the circuit board, have deteriorated due to thermal stress. The resistors are designated R38, R39 and R41 on the circuit board.

The printed wiring patterns uses pads of only 1/8 inch diameter at these locations. The heat is dissipated in the wire wound resistors and is conducted through the leads of the resistors to these pads. It is also radiated from the body of the resistor to the board below. This thermal stress has caused the bond of the printed wiring pattern to the glass epoxy circuit board to show discoloration and the pads have lifted from the surface of the board. This jeopardizes the integrity of the connections. No actual failure has occurred, however should the connection fail, the relay would not operate properly. The likely failure mode for Catalog Number 211L1175, would be to go into an "Undervoltage" condition.

ABB proposed to CEI to furnish an interim circuit board with provisions for adequate heat dissipation. These boards could be changed out one at a time since the plant is in operation. It was also proposed that these relays be changed out at the next outage with different model relays. CEI has advised ABB that they are evaluating their procedures for alternatives to circuit board or relay replacement.

The newer model relays have substantially larger pads and higher wattage rating resistors to lower the operating temperature, and avoid the conditions listed previously.

These 211L relays are used in other nuclear stations and are listed in Appendix "A". It is believed that the relays installed at the TVA Browns Ferry and Sequoyah plants were replaced with the ABB 27N relay to obtain a higher set point accuracy, and therefore will not have this condition.

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The relays in the switchgear at PSI Marble Hill (cancelled) may have been resold to other plants or users. ABB has no knowledge of their current location.

Detroit Edison (Fermi) and Duquesne Light (Beaver Valley) should contact ABB for recommended corrective action depending upon the application of these relays.

The quantity of relays listed in Appendix "A" includes the total number of relays at each location. Not all are used in Safety Related applications. Also, the relays may be identified as "ITE" 27/59 rather than ABB 27/59.

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Copies of this report are being sent to the nuclear stations listed in Appendix "A".

Chillings for

A. F. Kaiser, President ABB Power Distribution Inc.

EWR/jm

Attachment

cc: K. Naidu



APPENDIX "A"

Company	Station	Qty	Relay S.O.	Switchgear S.O.
CEI (211L1175)	Perry	48		33-51959
Detroit Edison (211L0275)	Fermi	12	34-31322	
Duquesne Light (211L0275)	Beaver Valley	2 2	34-34310 34-34717	==
PSI (211L1175)	Marble Hill	12 •2	34-39971 34-39902	33-52213 33-52213
TVA (211L0175)	Browns Ferry	13	34-38625	
TVA (211L0175)	Sequoyah	12	34-42905	