

Date: October 25, 1974

**IMPROPER FACTORY WIRING ON GENERAL ELECTRIC MOTOR  
CONTROL CENTERS AT FORT CALHOUN**

We recently received information from Omaha Public Power District describing a deficiency in the factory wiring on GE type 7700 MCC breaker-starters. The improper wiring was discovered in both safety related and non-safety related breaker-starters at the Fort Calhoun nuclear power plant.

Description of Circumstances

OPPD reported the insulation on the power carrying wires in the combination breaker-starter for the non-safety related demineralized water transfer pump burned due to over-current and improper factory wiring practices. The improper factory wiring was discovered while OPPD personnel were rewiring the breaker-starter (GE type 7700 MCC, THEF-100A, 3 phase, 480 V, FVNR Size 3).

The factory installed wire was GE Vulkene "600" Cable Type XHHW SI-58053 B 4AWG 600 V (UL). The wire is made of stranded copper conductors covered by cellophane tape which in turn is covered by an outer cable jacket. In the affected breaker-starter, the cellophane tape had not been removed after the cable jacket was stripped off; therefore, the lug was crimped directly over the cellophane resulting in a limited contact surface between the conductor and the lug. When the motor overloaded, due to worn bearings, excessive heating occurred at the lug-cellophane-conductor interface causing the cable jacket to burn and the molded case circuit breaker to be deformed.

Inspection of all GE MCC switchgear revealed 13 out of 20 GE MCC's wired with GE Vulkene "600", Cable Type XHHW, SI-58053 B 4 AWG were wired improperly. A similar problem existed in 3 out of 11 breakers where GE Vulkene "600", Cable Type XHHW, SI-58053 B 2 AWG wire was used. The problem was found to be characteristic of the cable type and wire size rather than the breaker-starter size.

OPPD reported that the problem has been discussed with GE and that GE plans to replace the wire in the affected breaker-starters at Fort Calhoun.

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Action Requested of Licensees

It is requested that you review the use of GE Vulkene "600" cable in safety related breaker-starters of your facility(ies), and provide the following information to this office in writing within 60 days:

Where GE Vulkene "600" cables of the breaker-starters type described above have been used in safety related breaker-starters of your facility(ies), describe the action you have taken or plan to take to insure against improper termination of these cables similar to that described above.

Your written reply to this Bulletin should include a description of the number and location of any cables found to be improperly terminated, together with the date corrective measures were, or will be, completed.

If GE Vulkene "600" cables of the type breaker-starters described above have not been used in safety related breaker-starters of your facility(ies), your written response should indicate this to be the case.