

DEFICIENCY IN GENERAL ELECTRIC MODEL 4KV MAGNE-BLAST BREAKERS

We recently received information from the Baltimore Gas & Electric Company relating to circuit breaker malfunctions in the engineered safety systems of their Calvert Cliffs Units 1 and 2. These circuit breakers, General Electric Model 4KV Magne-Blast, are used extensively at both PWR and BWR facilities. The malfunctions, which could negate operation of engineered safety system components, were attributed to an oversized roller trip bar and improper clearances of related guide holes and linkages.

We have also received information from the Vermont Yankee Nuclear Power Corporation describing an installation deficiency of the auxiliary switch assembly installed in the General Electric Model 4KV Magne-Blast circuit breakers at the Vermont Yankee station. Although the circuit breakers are similar in model to the units used at Calvert Cliffs, they are of a different type and are used at both PWR and BWR facilities. Pertinent details relating to both problems are contained in Section A below, and the related action requested by this Bulletin is contained in Section B.

A. Description of Circumstances**Calvert Cliffs Units 1 and 2**

On several occasions in the past, there had been unexplained "trip open" operations of several 4KV circuit breakers. On each occasion, the anomaly occurred immediately following an attempt to close the circuit breakers. Investigation of the problem disclosed that cause for the failures was attributed to an oversized spring discharge roller bar located on the right side of the breaker cubicle and improper clearances in the roller bar guide hole and associated linkages. The purpose of the roller bar is to trip open the breaker unit in the event it is inserted into the breaker cubicle while in a closed position. However, the installed roller bars were found to be approximately 1/4" longer than the design length, causing interference with the breaker auxiliary switch linkage.

Approximately 116 General Electric Model 4KV Magne-Blast circuit breakers equipped with the faulty roller bars were installed in the two nuclear units at this facility.

The following details are provided for your information because we are requesting that you determine whether or not the subject breakers are used or are planned to be used at your facility:

Manufacturer: General Electric Company
Auxiliary Switch Assemblies in MC-4.76 Horizontal Drawout
Metal Clad Switchgear

dupe

7910260508

Vermont Yankee

The licensee reported that while investigating a problem involving a station service water pump 4KV circuit breaker, an electrician noted that the breaker stationary auxiliary switch assembly rear mounting bolt had loosened and was disengaged from its mounting plate. The loose bolt is one of two bolts that assist in maintaining proper switch contact alignment. The loosening and disengagement of the tie bolt caused misalignment of the switch auxiliary contacts which could have rendered those contacts inoperable. Inspection of similar switch assemblies installed in forty-seven 4KV circuit breakers at this facility found that all switch assemblies exhibited varying degrees of bolt loosening.

The following details are provided for your information because we are requesting that you determine whether or not the subject devices are used or are planned to be used at your facility:

Manufacturer: General Electric Company
Type: Metal Clad, M26 Switchgear (This switchgear has the auxiliary switch assembly mounted on it and may be used with a large number of different circuit breakers.)

B. Action Requested

It is requested that you determine whether safety related (Class IE) circuit breakers of the described makes and models are installed at your facilities. Please provide the RO Regional Office with your findings within 20 days from receipt of this bulletin.

With regard to the problem at Calvert Cliffs Units 1 and 2, if the subject breakers are installed, please include in your response a description and the results of your program to determine if you have oversized roller trip bars installed and the scheduled completion date of your corrective actions. For facilities under construction, please inform us of your plans to assure that appropriate modification has been implemented in all safety related circuit breakers of the type described that have been or will be installed at your facility.

With regard to the Vermont Yankee problem, it is requested that you ascertain the bolt tightness of the switch assembly in question and include in your response a description and the results of your inspection program. It is also requested that you inform us of your plans regarding the long term verification of bolt tightness of the switch assemblies.

Should you have any questions concerning this matter, we will be pleased to discuss them with you.