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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
230 PEACHTREE STREET, N.W. SUITE 818
ATLANTA, GEORGIA 30303

MAY 31 1978

In Reply Refer To:
RII:JPO
50-369, 50-370
50-269, 50-270
50-287

Duke Power Company
Attn: Mr. William O. Parker, Jr.
Vice President, Steam Production
P. O. Box 2178
422 South Church Street
Charlotte, North Carolina 28242

Gentlemen:

Enclosed is IE Bulletin No. 78-06 which requires action by you with regard to your power reactor facility(ies) with an operating license or a construction permit.

Should you have questions regarding this Bulletin or the actions required of you, please contact this office.

Sincerely,

for James P. O'Reilly
Director

Enclosures:
1. IE Bulletin No. 78-06
2. List of IE Bulletins Issued in 1978

cc w/encl:
J. C. Rogers roject Manager
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D. C. 20555

May 31, 1978

IE Bulletin No. 78-06

DEFECTIVE CUTLER-HAMMER, TYPE M RELAYS WITH DC COILS

Description of Circumstances:

The Duke Power Company recently reported that during a series of tests of the Emergency Power Switching Logic System at Oconee Nuclear Station, four relays in the standby buses #1 and #2 voltage sensing circuitry were found to be inoperable. The relays are identified as Cutler-Hammer Type M, DC Relays, Catalog No. D23 MRD. This finding prompted the licensee to perform another test of the Emergency Power Switching Logic during which one additional relay of the same type and model as identified above also failed. To date, twelve failures of this DC relay type have occurred at Oconee Nuclear Station.

The manufacturer determined that cause for failure was loss of arc gap in the coil clearing contact where the normal mode of operation is to have the coil continuously energized. The purpose of this contact is to interrupt the inrush current to the pickup coil winding in order to prevent winding burn out. The loss of arc gap in the clearing contact was caused by an abnormal amount of heat induced shrinkage of molded magnet carriers which are used in subject relays manufactured between 1971 and July of 1976. According to Cutler-Hammer, the loss of arc gap affects the performance of only the type M relays with DC coils since relays with AC coils do not use the coil clearing contact feature.

The attached Cutler-Hammer Notification of Potential Product Failure was sent to all distributors of type M relays with DC coils with instructions to notify end users of the potential problems. The notification identifies the problem and provides their recommended corrective action.

Action To Be Taken By Licensee:

For all power reactor facilities with an operating license or construction permit:

1. Determine whether Cutler-Hammer Type M Relays with a DC coil are used or planned to be used in safety-related systems at your facility(ies).

2. If such relays are used or planned for use in safety-related systems describe what corrective actions you have taken or plan to take to assure proper relay operation.

3. Facilities having an operating license should report in writing within 45 days and facilities with construction permits within 60 days, the results of action taken or planned with regard to Items 1 and 2 above. Your written reply should also include the date when such actions were or will be completed.

Reports should be submitted to the Director of the appropriate NRC Regional Office and a copy should be forwarded to the U. S. Nuclear Regulatory Commission, Office of Inspection and Enforcement, Division of Reactor Operations Inspection, Washington D.C. 20555.

Approval by GAO, B180225 (R0072); clearance expires 7/31/80. Approval was given under a blanket clearance specifically for identified generic problems.

Attachments:
Cutler-Hammer Notification

MAILGRAM

You may have purchased for resale, some of the type M relays with d-c coils described below. If you have, please take action to notify your customers of a potential mode of failure.

NOTIFICATION OF POTENTIAL PRODUCT FAILURE

Some Cutler-Hammer type M relays with d-c coils produced from 1971 thru July of 1976, that are used in circuits where the normal mode of operation is to have the coil continuously energized, may eventually fail due to loss of arc gap in the coil clearing pole. This loss of arc gap is primarily caused by an abnormal amount of heat-induced shrinkage in some of the molded magnet carriers. If the relay is used in this circuit where the coil is continuously energized, the heat from the coil may cause the magnet carrier to shrink to a point where the arc gap in the coil clearing pole becomes small to break the inrush current of the pickup coil winding, causing the coil to overheat and burn out. In some cases, the damage from the coil burning out may result in the relay being stuck in the ON (energized) position, thus preventing it from dropping out when power is removed from the coil.

If you are aware of any applications where this relay is used in a continuously energized mode and where a failure as described above may result in a hazard, have that relay removed and replace it with a current Cutler-Hammer D26MRD type M d-c relay.

Cutler-Hammer type M relays can be identified by the front nameplate, and those with d-c coils can be further identified by looking for the wire from pickup winding of the coil that connects to the coil clearing pole. This wire protrudes from the coil molding on the opposite side as the normal coil terminals.

The date code indicating when the relay was produced is stamped in white ink on the lower deck molding either in the center just above the coil terminals or on the leg of the lower deck molding adjacent to the coil terminals. The date code consists of either the month and year (example 6-75) or the month and year followed by an inspector number which may be 2 or 4 digits (example 12717121 which is December 1971).

If you need additional information, please contact the writer at Area Code 414 442-7800, Ext. 2458.

John H. Breunig
Product Marketing Engineer
Logic Device Marketing
Cutler-Hammer Inc.
Milwaukee, Wisconsin 53216

IE Bulletin No. 78-06
May 31, 1978

LISTING OF BULLETINS
ISSUED IN 1978

Bulletin No.	Subject	Date Issued	Issued To
78-01	Flammable Contact - Arm Retainers in G.E. CR120A Relays	1/16/78	All Power Reactor Facilities with an OL or CP
78-02	Terminal Block Qualification	1/30/78	All Power Reactor Facilities with an Operating License (OL) or Construction Permit (CP)
78-03	Potential Explosive Bas Mixture Accumulations Associated with BWR Offgas System Operations	2/8/78	All BWR Power Reactor Facilities with an Operating License (OL) or Construction Permit (CP)
78-04	Environmental Qualification of Certain Stem Mounted Limit Switches Inside Reactor Containment	2/21/78	All Power Reactor Facilities with an Operating License (OL) or Construction Permit (CP).
78-05	Malfunctioning of Circuit Breaker Auxiliary Contact Mechanism-General Model CR105X	4/14/78	All Power Reactor Facilities with an Operating License (OL) or Construction Permit (CP).