

RELAY FAILURES-WESTINGHOUSE BF (ac) AND BFD (dc) RELAYS

DESCRIPTION OF CIRCUMSTANCES:

During testing of Westinghouse BFD relays, the Point Beach nuclear power plant experienced malfunctions with two relays in the reactor trip system. The malfunctions were caused by the pin that connects the plunger to the operating head rubbing against the contact block. Although the coils were fully energized the relay contacts remained in the deenergized position. A similar malfunction occurred in one of a set of relays undergoing accelerated aging tests at the Westinghouse Beaver facility.

The malfunction relating to pin misalignment may be common to both BF (ac) and BFD (dc) relays. Portions of a Westinghouse service letter containing information about these relays are attached to this circular. Further instructions regarding this relay problem can be obtained from Westinghouse Nuclear Service Division, Pittsburgh, Pennsylvania 15230.

ACTION TO BE TAKEN BY LICENSEES AND PERMIT HOLDERS:

The following actions should be taken with respect to all Westinghouse BF (ac) and BFD (dc) relays in safety related systems:

1. Describe the action taken or that you plan to take to verify that normally energized relays in safety related systems are in fact operable and that the relay contacts are in the energized position.
2. Describe the action taken or that you plan to take to verify that normally deenergized relays in safety related systems operate properly when energized and that the relay contacts are in the energized position.

Reports for facilities with operating licenses should be submitted within 60 days after receipt of this circular, and reports for facilities with construction permits should be submitted within 90 days after receipt of this circular. Your report should include the date when the above actions were or will be completed.

Reports should be submitted to the Director of the NRC Regional Office and a copy should be forwarded to the NRC Office of Inspection and Enforcement Division of Reactor Inspection Programs, Washington, D. C. 20555.

Approval of NRC requirements for reports concerning possible generic problems has been obtained under 44 U.S.C 3152 from the U. S. General Accounting Office. (GAO Approval B-180255 (R0072), expires 7/31/77)

Attachment:

Extract from Westinghouse Service Letter:
BF (ac) and BFD (dc) Relays

#7910240846

EXTRACT FROM WESTINGHOUSE SERVICE LETTER:

BF & BFD RELAYS

During the testing of certain Westinghouse BFD relays at an operating nuclear power plant, two relays in the reactor trip system were found to have malfunctions. Although the coils were fully energized, the relay contacts remained in the deenergized position. It was determined that, in both cases, the pin that connects the plunger to the operating head was rubbing against the contact block. This rubbing action resulted in friction that impeded the plunger movement when the relay coil was energized thereby preventing contact movement. The malfunctioning relays were immediately replaced. When disassembled it was found that the relays would operate normally when the pin was centered in the plunger.

Coincidentally, Westinghouse (Beaver) the relay manufacturer, experienced a similar malfunction in one of a set of similar relays which are currently undergoing accelerated aging tests.

Westinghouse (Beaver) and Westinghouse (NES) are currently investigating this situation in detail as it applies to both BF (ac) and BFD (dc) models. Consideration is being given to various means by which the pin could be held captive, thereby precluding further pin misalignment, if such a course of action becomes necessary.

RECOMMENDED ACTION

Visually inspect normally energized relays to verify that such relays are in fact picked up. Observe the performance of normally deenergized relays during normal periodic testing.