OMB No.: 31500011
NRCB 88-03

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, D.C. 20555

March 10, 1988

NRC BULLETIN NO. 88-03: INADEQUATE LATCH ENGAGEMENT IN HFA TYPE LATCHING RELAYS MANUFACTURED BY GENERAL ELECTRIC (GE) COMPANY

Addressees:

All holders of operating licenses or construction permits for nuclear power reactors.

Purpose:

The purpose of this bulletin is to request that licensees perform inspections to ensure that all GE latching-type HFA relays installed in Class 1E (safety-related) applications have adequate latch engagement and that those relays which fail to meet acceptance criteria be repaired or replaced.

Description of Circumstances:

GE Meter and Control Business Department (MCBD) investigated a report dated October 7, 1987 from their Nuclear Energy Business Operation that certain latch-type relays supplied by GE with Certificates of Conformance, qualifying them to the requirements of IEEE-323, "IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations," which includes IEEE-344, "IEEE Recommended Practices for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations," were malfunctioning. MCBD informed the NRC of this problem in accordance with 10 CFR Part 21 on November 12, 1987 (attached) and sent a letter dated November 16, 1987 to all purchasers of HFA 151B, 154B, and 154E type latching relays who had specified Class 1E or equivalent on their purchase order. Although GE reported that they have informed all their customers who purchased the relays as Class 1E components, there may be "Other Equipment Manufacturers" who purchased these relays as commercial grade components and then installed them in panels and certified them as Class 1E components on the basis of analysis. GE MCBD has halted production of these relays pending resolution of this problem.

The NRC believes that the operability of all HFA 151B, HFA 154B and HFA 154E relays with a manufacturing date code prior to November, 1987 has been brought into question and therefore the relays should be inspected. Also, the following

additional latching-type HFA relays which were not qualified to IEEE-323 by GE, but which may have been qualified and used by "Other Equipment Manufacturers" in Class 1E, (safety-related) applications may also be suspect:

Non-Century Series	Century Series
Types HFA 54	HFA 154
HFA 74	HFA 174
HFA 51B	HFA 151B
HFA 71B	HFA 171B

In GE latching-type HFA relays, when the coil is energized, the armature operates a latch which locks in the change in the state of the contacts and holds them in that state once the relay is de-energized until such time that the relay is mechanically or electrically reset. GE MCBD determined that when the relay is energized, with the armature in the latched position, each leg of the U-shaped latch should engage the top of the armature by the required minimum of 1/32 inch. With less than 1/32 inch latch engagement, it is possible that the relay could unlatch prematurely. GE MCBD concluded that two circumstances can cause latch engagement to be less than 1/32 inch: (1) Insufficient clearance between the top of the relay armature and the top of the moving contact carrier and, (2) Insufficient tension provided by the formed leaf spring that rotates the latch to its fully engaged position, which may permit the spring to relax before full engagement between the latch and the armature is achieved.

Actions Requested:

Addressees should complete the actions described below for all latching-type HFA relays in Class 1E (safety-related) applications no later than restart following the next refueling outage scheduled to begin 30 days or more from receipt of this bulletin.

1) In accordance with the GE recommendation contained in Attachment 1, measure the distance between the top of the molded contact carrier and the top of the relay armature. This distance should be a minimum of 1/32 inch.

2) In accordance with the GE recommendation contained in Attachment 1, with the armature fully depressed against the pole piece, check to see if the latch is fully rotated by pulling up on the latch assembly. If the latch is fully rotated, there should be no motion of the latch, since the latch should be held against the armature by spring tension.

3) Repair or replace any relay which fails the above inspections, such that the relay satisfies the GE criteria.

4) Inspect all existing spare HFA relays as above. Future spares received should be inspected prior to their installation if manufactured prior to November 1, 1987.

Reporting Requirements:

Records of inspection and corrective actions in response to this bulletin shall be documented and maintained in accordance with plant procedures for Class 1E equipment. Any addressee who does not have HFA type latching relays subject to this bulletin shall provide a letter to the NRC stating this fact within 120 days of receipt of this bulletin. Addressees who do have HFA type latching relays subject to this bulletin including those who have previously responded to the GE SAL shall provide letters of confirmation of completion of the inspections. These letters shall include the number of relays of each type inspected, the number of relays of each type requiring corrective actions due to item 1 under Actions Requested, and the number of relays of each type requiring corrective actions due to item 2 under Actions Requested. These letters of confirmation shall be submitted to the NRC within 30 days of completion of the inspections.

The letter of confirmation shall be submitted to the appropriate Regional Administrator under oath or affirmation under the provisions of Section 182a, Atomic Energy Act of 1954, as amended, including the provisions of 10 CFR 50.54(f). In addition, the original copy of the cover letter and a copy of any attachment shall be transmitted to the U. S. Nuclear Regulatory Commission, Document Control Desk, Washington, D.C. 20555, for reproduction and distribution.

This request for information was approved by the Office of Management and Budget under blanket clearance number 31500011. Comment on burden and duplication should be directed to the Office of Management and Budget, Reports Management, Room 3208, New Executive Office Building, Washington, D.C., 20503.

Although no specific request or requirement is intended, the following information would be helpful to the NRC in evaluating the cost of implementing this bulletin:

1. Staff time to perform the requested inspections and corrective actions.

2. Staff time to prepare the requested documentation.

3. Additional cost incurred as a result of the inspection findings (e.g., costs of corrective actions, costs of downtime).

If you have any questions about this matter, please contact one of the technical contacts listed below or the Regional Administrator of the appropriate regional office.

Charles E. Rossi

Charles E. Rossi, Director
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Technical Contacts: K. R. Naidu, NRR
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Attachments:
1. GE letter dated November 12, 1987
2. List of Recently Issued NRC Bulletins