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NUCLEAR POWER

**GENERAL  ELECTRIC**

GENERAL ELECTRIC COMPANY, 175 CURTNER AVE., SAN JOSE, CALIFORNIA 95125  
MC 682, (408) 925-5040

**SYSTEMS DIVISION**

82-683-000

July 28, 1982

MFN 101-82  
CAC 72-82

U. S. Nuclear Regulatory Commission  
Office of Inspection and Enforcement  
Washington, DC 20555

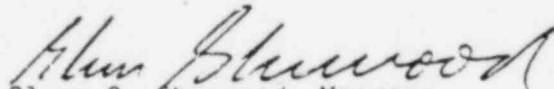
Attention: Richard C. DeYoung

SUBJECT: 10CFR PART 21, REPORTABLE CONDITION  
HFA RELAY CONTACT SETTING

This letter is to inform the NRC of a reportable defect per 10CFR Part 21, as reported to W. Mills of your office by C. A. Cameron, Manager of Safety Evaluation Programs on July 27, 1982. The defect occurred in the installation of HFA Relays in control room panels.

General Electric will inform affected plants of the defect and the actions required to correct it. The attached evaluation identifies all pertinent information required by 10CFR Part 21.

Very truly yours,



Glenn G. Sherwood, Manager  
Nuclear Safety and Licensing Operation

Attachment

GGs:hjr/C070912

cc: R. H. Engelken, Region V  
L. S. Gifford, GE Washington Liaison Office  
B. H. Grier, Region I  
J. G. Keppler, Region III  
J. P. O'Reilly, Region II  
U. Potapovs, Region IV  
R.C. Young, NRC (2 extra copies)

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CF SUBJ  
L-4-1PT21 PDR

L-4-1, Pt. 21

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## REPORTABLE CONDITION

1. Name and address of the individual or individuals informing the Commission.

Dr. Glenn G. Sherwood, Manager of Safety and Licensing Operation  
General Electric Company, 175 Curtner Avenue, San Jose, CA 95125

2. Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

Electrical panels incorporating HFA relays.

3. Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

General Electric Company, Nuclear Energy Business Operation, San Jose, California

4. Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

The defect is the incorrect "wipe setting" of normally closed (NC) contacts on some HFA relays converted from normally open (NO) by GE shop and/or field personnel. ("Normally closed" means closed in the deenergized state.) Qualification was performed with calibrated contacts, so a relay with less than a minimum wipe setting does not fall within the component qualification limits. The safety hazard created is the potential for a NC contact in the HFA relay to fail to actuate engineered safety systems properly during a seismic event. For example, the Reactor Protection System Recirculation Pump Trip (RPT) circuit breaker trip coils are energized by NC HFA relay contacts. During normal operation the HFA relay NC contacts are kept open by energizing the coil. This prevents the RPT circuit breaker trip coils from being actuated. Should an event occur requiring the activation of the trip coils, the energy to the HFA relay coil would cease, releasing the contact arm to make contact with the stationary arm, thereby energizing the RPT circuit breaker trip coil. The failure to initiate RPT per design may create thermal transients which threaten the fuel thermal safety limits which are designed to assure fuel cladding integrity.

5. The date on which the information of such defect or failure to comply was obtained.

July 26, 1982

6. In the case of a basic component which contains a defect or fails to comply, the number and location of all such components in use at, supplied for, or being supplied for one or more facilities or activities subject to the regulations in this part.

Plants under construction or prior to operating license turn over.

## 6. Continued

LaSalle 1 & 2	242	HFA's ea	Zimmer 1	216	HFA's
Susquehanna 1 & 2	231	HFA's ea	Shoreham	304	HFA's
Grand Gulf 1 & 2	24	HFA's ea	Hanford	261	HFA's
Perry 1 & 2	38	HFA's ea	Fermi 2	286	HFA's
Limerick 1 & 2	4	HFA's ea	Clinton	58	HFA's

(Not all relays have normally closed contacts.)

## Safety systems using HFA relays:

ADS (Automatic Depressurization System)  
 RHR (Residual Heat Removal System)  
 LPCS (Low Pressure Core Spray System)  
 RCIC (Reactor Core Isolation Cooling)  
 HPCI (High Pressure Cooling Injection)  
 HPCS (High Pressure Core Spray)  
 CS (Core Spray)  
 RPS (Reactor Protection System)

Operating GE BWR plants also use HFA relays in varying quantities. The extent of this defect is not known for operating plants, since the current state of calibration of the HFAs for these plants is not known by GE. The risk associated with continued plant operation is not substantial during the upcoming calibration period. Operating plant experience has not yielded evidence of uncalibrated HFA relays causing potential safety hazards. It is likely that most of the operating plant HFA relays have already been readjusted in the field at some point in time. Of those HFA relays that need readjustment, few, if any, would be applied in system logic that requires operation during a seismic event in order to maintain plant safety. These points, coupled with the very low probability of occurrence of a design basis seismic event, provide justification for continued plant operation while the HFA relays are being checked.

7. The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has been or will be taken to complete the action.

Issuance of GE Field Disposition Instructions (FDI) to all affected BWRs under construction instructing that all safety related HFAs be checked and recalibrated, if necessary, using GE-PSMBD Instructions, GEH 2024, "Multicontact Auxiliary Relay Type HFA 51. and/or GE-PSMBD Instructions GEK 45484, Multicontact Auxiliary Relay Type HFA 151.  
 FDI Issue Dates: 2/12/82-LaSalle #1; 2/19/82-Susquehanna #1 & #2, Grand Gulf #1 & #2; 2/20/82-LaSalle #2; 2/24/82 Zimmer, Shoreham, Hanford; 3/10/82-Clinton; 3/19/82-Perry #1 & #2, Limerick #2.

GE - San Jose issued Repair/Modification Bulletin RG002 "HFA Relay Magnetic Coil Assembly Replacement and Contact Inspection/Adjustment" 2/12/82. This Bulletin provides instruction to GE shop personnel in the correct adjustment procedure for relay wipe setting.

GE SIL (Service Information Letter) 44 Supplement 4 will be issued to inform operating plants of the potential HFA relay anomalies, and the corrective action to resolve such anomalies.

8. Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licenses.

None