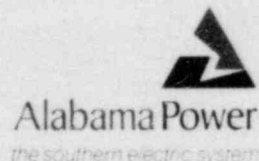


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Docket Nos. 50-348  
50-364

July 12, 1984

Mr. J. P. O'Reilly  
Regional Administrator  
U. S. Nuclear Regulatory Commission  
Region II, Suite 3100  
101 Marietta Street, N. W.  
Atlanta, Georgia 30303

Gentlemen:

IE Bulletin No. 84-02 entitled "Failures of General Electric Type HFA Relays in Use in Class 1E Safety Systems," requested licensees to develop plans and schedules for replacing suspect HFA relays in safety-related applications and to provide justification for continued operations in the interim.

Alabama Power Company implemented a program in January 1981 to replace all HFA relays in safety-related and non-safety-related applications at J. M. Farley Nuclear Plant with the new Century Series HFA relays as described in the attached. In Unit 1, all HFA relays have been replaced with the new General Electric Century Series relays. In Unit 2, 33 HFA relays in safety-related applications remain to be replaced. These 33 HFA relays will be replaced by the end of the Unit 2 third refueling outage tentatively scheduled for January, 1985. Specific responses to each of the bulletin requirements are given in the attachment.

To date, approximately 3900 manhours have been expended in the replacement of HFA relays. Of these, approximately 100 manhours were expended performing the requested review and approximately 100 manhours were expended preparing the requested documentation.

Yours truly,

R. P. McDonald

RPM/OWK:drs/D-338  
Attachment  
cc: See Page 2

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Docket Nos. 50-348 and 50-364  
Mr. J. P. O'Reilly  
July 12, 1984  
Page 2

cc/Att: Mr. L. B. Long  
Mr. S. A. Varga  
Mr. E. A. Reeves  
Mr. W. H. Bradford

**JOSEPH M. FARLEY NUCLEAR PLANT - UNITS 1 AND 2  
RESPONSE TO IEB 84-02**

NRC Requirement 1.a.

Develop plans and schedules for replacing (1) nylon or Lexan coil spool-type HFA relays used in normally energized safety-related applications and (2) nylon coil spool-type HFA relays used in normally de-energized safety-related applications. The replacement relays and any replacements made in the future should meet the requirements of the applicable IEEE standards. The replacement program for energized and de-energized relays should be performed on a "best efforts" basis during plant outages of sufficient duration. The entire replacement program should be completed within two years from the date of this bulletin.

The replacement schedule should consider the following recommended priority:

Nylon or Lexan normally energized in the reactor trip system  
Nylon or Lexan normally energized in other safety-related applications  
Nylon normally de-energized in the reactor trip system  
Nylon normally de-energized in other safety-related applications

Response

In response to General Electric Service Advice 721-PSM-152.2 and IE Information Notice No. 81-1, Alabama Power Company implemented a program in January 1981 to identify and replace all HFA relays in safety-related and non-safety-related applications at J. M. Farley Nuclear Plant with the new General Electric Century Series HFA relays. Currently, 473 of the 508 relays have been replaced. All of the 35 relays yet to be replaced are in Unit 2. Of the remaining relays, thirty three are used in safety-related applications with six of these normally energized. All the remaining relays are scheduled to be replaced prior to start-up following the third refueling outage tentatively scheduled for January 1985.

NRC Requirement 1.b.(1)

During the period before relay replacement, develop and implement surveillance plans that include:

Monthly functional tests of all reactor trip system normally energized relays that verify relay contacts change state when the relay coil is de-energized.

Response

None of the remaining 33 safety-related relays requiring replacement are associated with the reactor trip system.

NRC Requirement 1.b.(2)

Visual inspections of all safety-related normally energized relays as soon as practical upon receipt of this bulletin. Thereafter, similar inspections should be accomplished in conjunction with the monthly functional test. These visual inspections should verify that relay coils are not deteriorating (e.g., inspect coil bobbins for visible cracks or melting), and should confirm cleanliness of the relay pole pieces.

Response

Of the remaining 33 relays requiring replacement, six are normally energized. These six relays have been inspected and found to be in good condition and will be inspected monthly until they are replaced.

NRC Requirement 1.c

Provide a basis for continuing operation for the period of time the normally energized relays are replaced. This basis should include a discussion of those measures addressed in Items 1a and 1b and any other preventive and/or corrective measures taken or planned.

Response

Of the 473 HFA relays removed from Units 1 and 2, none were found to be inoperable or to have heat damaged coil spools. Of the 473, five were found to have cracked coil spools.

For Unit 2, 33 safety-related relays require replacement. Of these, six are normally energized. Of the six energized relays, four are DC undervoltage relays that provide only an "alarm" function in the unlikely event of loss of DC control voltage to the following monitored circuits:

1. 4160V bus 2F load shedding circuit,
2. 4160V bus 2G load shedding circuit,
3. Diesel generator 1C Unit 2 circuit breaker control, and
4. 4160V bus 2H underfrequency auxiliary relay circuit.

Failure of the above alarm relays in the manner described in the IE Bulletin would not preclude operation of the circuit being monitored by the relay.

The remaining two energized relays are the 4160 VAC bus 2F (Train A) and 2G (Train B) undervoltage relays. Failure of either one of these two relays could initiate (assuming relay fails to the de-energized position) an inadvertent load shedding sequence and diesel generator start for the respective 4160 VAC bus. This condition is not of safety significance. Failure of either of these relays in the energized position, coupled with an undervoltage condition, would preclude automatic initiation of the load sequence and associated diesel generator start for the respective 4160 VAC bus. Simultaneous failure of both relays in a demand situation is judged to be an extremely low probability event particularly in the short interval between the date of this letter and the planned refueling outages in January 1985.

To date, none of the suspect HFA relays have failed in service. In addition, the two normally energized 4160 VAC bus 2F and 2G undervoltage relays in Unit 2 were placed in continuous service in May 1978 and have not reached the end-of-life situation described in IE Bulletin (10 - 12 years of service).

The corrective measures taken to date have removed all suspect HFA relays from Unit 1 and all but 33 suspect relays in safety-related applications from Unit 2. These 33 remaining suspect HFA relays are scheduled to be replaced by the end of Unit 2 third refueling outage. Monthly visual inspections ensure that any deterioration in the normally energized relays will be detected.

Based on the above, Alabama Power Company deems it appropriate to continue operation of the Joseph M. Farley Nuclear Plant, Units 1 and 2.

#### General Requirement

Although the specific details involving the identified relay failures described above may not directly apply to your facility(ies), you are asked to review the general concerns expressed in the bulletin for applicability at your facility(ies). For example, if a different type of relay is used for the same safety functions described in this bulletin, or relays with similar materials are used for other safety-related functions, past operating history and the manufacturer's recommendations should be reviewed to determine if additional action is appropriate. Your response should describe the results of the review, and, if the general concerns apply, you should describe the short-term and long-term corrective actions to be taken and the schedules thereof.

#### Response

Alabama Power Company reviewed the failure history of other relays in safety-related applications and did not find any trends indicative of material problems similar to those outlined in the IE Bulletin.