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WILLIAM D. HARRINGTON
SENIOR VICE PRESIDENT
NUCLEAR

July 17, 1984
BECO 84-110

Dr. Thomas E. Murley
Regional Administrator
Office of Inspection and Enforcement
Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

License No. DPR-35
Docket No. 50-293

Reference: IE Bulletin No. 84-02 "Failures of General Electric Type HFA
Relays in Class IE Safety Systems" dated 3/12/84

Dear Sir:

In response to IE Bulletin No. 84-02, Boston Edison Company (BECO) submits the
attached information for your review.

Pilgrim Station, as reported in the referenced bulletin, has experienced
failures of General Electric type HFA, series 51, AC normally energized
relays. Because of these failures, BECO had planned to replace a large number
of HFA relays during the current refuel outage which began on December 10,
1983. The schedule for replacement was contingent upon receipt of a
sufficient number of relays from General Electric. The attached responses
delineate the status of this replacement program for each of the applications
mentioned in the bulletin.

Should you have any questions concerning this response, please do not hesitate
to contact us.

Very truly yours,

GGW/ns
Attachment A

W.D. Harrington

cc: See next page

Commonwealth of Massachusetts)
County of Suffolk)

Then personally appeared before me W. D. Harrington, who, being duly sworn,
did state that he is Senior Vice President - Nuclear of Boston Edison Company,
the applicant herein, and that he is duly authorized to execute and file the
submittal contained herein in the name and on behalf of Boston Edison Company
and that the statements in said submittal are true to the best of his
knowledge and belief.

My Commission expires: JUNE 20, 1991

Sarah M. Lopez
Notary Public

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BOSTON EDISON COMPANY

Dr. Thomas E. Murley
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cc: U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D. C. 20555

ATTACHMENT A

IE Bulletin 84-02 "Failures of General Electric Type HFA Relays in Use in Class 1E Safety Systems"

Boston Edison responds to the specific actions requested in IEB 84-02 with the following information:

Item 1. Plants in Operation

- 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 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 to Item 1.a (1) - First Priority - Nylon or Lexan, Normally Energized in the Reactor Trip System

Boston Edison has sufficient Century series (12HFA151) relays in stock to replace the AC, normally energized, reactor protection system (RPS) relays. This activity is presently scheduled for completion during the current refuel and recirculation pipe replacement outage (RFO #6).

Response to Item 1.a (1) - Second Priority - Nylon or Lexan, Normally Energized in Other Safety-Related Applications

The other normally energized HFA relays used in other safety-related applications will be scheduled for replacement based upon delivery dates and existing plant operational conditions. BECo is expediting the material order through General Electric Company (GE) with an estimated shipment date by the end of July 1984. As such, replacement is planned for the current outage, but if this cannot be accomplished, replacement will occur no later than March, 1986.

Response to Item 1.a (2) - Third Priority - Nylon, Normally De-Energized in the Reactor Trip Systems

The normally de-energized, nylon coil spool, HFA relays, used in the RPS will be scheduled for replacement based upon delivery dates and existing plant operational conditions. BECo is expediting the material order through GE with an estimated shipment date by the end of July 1984. As such, replacement is planned for the current outage, but if this cannot be accomplished, replacement will occur no later than March, 1986.

Response to Item 1.a (2) - Fourth Priority - Nylon, Normally De-Energized, in Other Safety-Related Applications

The normally de-energized, nylon coil spool HFA relays used in other safety-related applications will be scheduled for replacement based upon delivery dates and existing plant operational conditions. BECo is expediting the material order through GE with an estimated shipment date by the end of July 1984. As such, replacement is planned for the current outage, but if this cannot be accomplished, replacement will occur no later than March, 1986.

Item 1. Plants in Operation

- b. During the period before relay replacement, develop and implement surveillance plans that include:
 - (1) Monthly functional tests of all reactor trip system normally energized relays that verify relay contacts change state when the relay coil is de-energized;
 - (2) Visual inspection 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 to Item 1.b (1) Monthly Functional Tests

Existing surveillance tests for the Reactor Protection System (RPS) include the required monthly functional testing of the normally energized applications, with the following exceptions:

Relays associated with -

- a. Scram Discharge Level Switches:
 - 1. Are presently functionally tested every three months.
 - 2. Are included in the list of relays scheduled to be replaced prior to startup from RFO #6.
- b. SRM shorting line:
 - 1. Are tested per procedure 8.M.1-27 "RPS Operability Test for Non-Coincident Mode" if ever removed.
- c. Mode Switch - Shutdown Scram Interlock:
 - 1. Are tested once per refuel outage.
 - 2. Are included in the list of relays scheduled to be replaced prior to startup from RFO #6.

d. Mode Switch - APRM Set Down:

1. Are tested prior to every startup
2. Are included in the list of relays scheduled to be replaced prior to startup from RFO #6.

Response to Item 1.b (2) Visual Inspections

Visual inspections of normally energized safety-related HFA relays have been performed. Since these relays are scheduled for replacement during RFO #6, further monthly visual inspections are not required. The normally energized safety-related HFA relays which are not replaced prior to certifying system operability (startup from RFO #6) will have the required visual inspections performed in conjunction with the monthly functional tests.

Item 1. Plants in Operation

- c. Provide a basis for continuing operation for the period of time until 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 to Item 1.c. Justification for Continued Operation

Since replacement of the problematic, normally energized, AC, HFA relays is scheduled for completion prior to startup from RFO #6, no justification for continued operation (JCO) is necessary. However, if a sufficient number of replacements for the priority 2 relays, (i.e. "in other safety-related applications") cannot be obtained, BECC will continue the visual inspections during the monthly functional testing until replacement.

Item 2 Plants Under Construction

Item 3 (Negative Response Request)

Response to Items 2 and 3

Items 2 and 3 of the bulletin do not apply to PNPS and no response is necessary.

- Item 4. If your plant uses or plans to continue to use the nylon or Lexan-type HFA relay in systems other than those safety-related applications defined in this bulletin, then the appropriate administrative controls dealing with maintenance, storage, and handling of spare parts at your facility must be revised to ensure that the older and problematic HFA relay coils are not inadvertently used as a replacement part in safety-related applications in future maintenance efforts at your facility (ies).

Response to Item 4 - Administrative Controls

Boston Edison is in the process of purging the Pilgrim I warehouse stock of any non-Century 100 series-HFA relays and deleting the associated warehouse stock codes to preclude the possibility of purchasing the older and problematic HFA relays and coils.

1st unnumbered paragraph, page 5 of IEB 84-02

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:

Past operating history on different type relays or relays with similar materials in safety-related applications does not indicate any failures as those described in IE Bulletin 84-02. Failures have been experienced on normally energized DC relays of a different type and these failures have been attributed to the higher than normal battery floating voltages. In 1978 actions were taken to replace these relays with higher voltage rated coils and no known failures have occurred since. Agastat GP series relays, as those described in IE Information Notice 84-20, have recently been installed (per TMI related modifications) and further investigation into the determination if any corrective actions are required is in progress.

At this time, there has been no known relay failure other than an occasional, unrelated, random failure (i.e., defective contact, spring adjustment, etc.); therefore, short-term and long-term corrective actions do not apply at this time other than the aforementioned Agastat GP series currently under investigation

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