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**New York Power  
Authority**

Corbin A. McNeill, Jr.  
Resident Manager

July 6, 1984  
JAAP-84-0666

United States Nuclear Regulatory Commission  
Region I  
631 Park Avenue  
King of Prussia, PA 19406

ATTENTION: Dr. Thomas E. Murley  
Regional Administrator

SUBJECT: I&E BULLETIN NO. 84-02 FAILURES OF GENERAL  
ELECTRIC TYPE HFA RELAYS IN USE IN CLASS IE  
SAFETY SYSTEMS

Gentlemen:

The subject I&E Bulletin identified past and potential failures of General Electric Type HFA relays and required the development of plans for the replacement of the aforementioned relay coils with a newer type.

The following are the specific NRC action requests and the New York Power Authority's responses:

ACTION 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 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 (2) years from the date of this bulletin.

RESPONSE

1. a) Since 1980 each Reactor Protection System (RPS) HFA Relay has undergone an extensive preventative maintenance examination which

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included contact and armature adjustments, coil pick-up/drop-out measurements and a general inspection of relay internals. These procedures were performed in 1980 for both "A" and "B" Reactor Protection System (RPS)HFA Relays, in 1981 for "B" Reactor Protection System (RPS) HFA Relays and in 1983 for "A" Reactor Protection System (RPS) HFA Relays.

During these inspections seven (7) coils have been replaced due to indications of deterioration within the coil windings. The coils had not failed but had exhibited indications similar to these described in the subject bulletin.

Based on the subject bulletin a program has been established for upgrading energized and de-energized General Electric Company Type HFA relays with the long-life Century series Tefzel bobbin coils. The program will commence during the September 1984 plant maintenance outage, continue during the January 1985 refueling outage and will be completed on or before January 31, 1986.

Two hundred eighty five (285) relays (one hundred nineteen (119) normally energized and one hundred sixty six (166) normally de-energized) within the Reactor Protection System (RPS) and other safety-related systems will be upgraded by the use of coil replacement kits or full replacement with qualified relays.

There are no plans to upgrade two (2) energized RPS HFA Relays. They are Reactor Protection System (RPS) 05A-K17A and 05A-K17B, Model number 12HFA65D69F.

This is a special time delay drop-out (TDDO) relay for which G.E. cannot supply long-life Century series coils. These are DC coil relays used in an AC circuit with rectifiers and provide two (2) second time delay drop-out contacts.

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One (1) set of 05A-K17A/B contacts is used to pick-up Reactor Protection System (RPS) relay(s) 05A-K16A/B. The other set of 05A-K17A/B contacts is used in series with contacts from 05A-K16A/B to provide a bypass around the open reactor mode switch contacts in the manual scram logic generated by placing the mode switch in the Shutdown position. This bypass allows the scram signal to be reset once 05A-K22A/B have timed out (ten seconds).

Should the 05A-K17A/B relays fail to drop out, there would be no designed way to reset the manual scram signal generated by moving the reactor mode switch to Shutdown. Failure to drop out will not inhibit any other scram or scram reset.

These relays (05A-K17A/B) are functionally tested once per operating cycle and will be included in our inspection procedure. Replacement of these relays with original equipment will be done by January 31, 1986 pending availability of replacements from General Electric.

#### ACTION 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;

#### RESPONSE

- 1.b(1) Current Instrument and Control Surveillance procedures and Operations Department Surveillance Tests functionally test HFA relays in the Reactor Protection system. The frequency of surveillances is once per month. The exceptions are: The initial

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fuel loading non-coincidental neutron monitoring trips (05A-K13A,B,C,D) which are not tested (they have installed bypass shorting links), and the shutdown scram reset interlock relays (05A-K17A/B) which are tested once per operating cycle.

#### ACTION ITEM

##### 1. Plants in Operation

- b) During the period before relay replacement, develop and implement surveillance plans that include:
- (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

- 1.b(2) An Instrument and Control procedure is being developed for the visual inspections and will be implemented by July 15, 1984. The procedure will include the documentation of visual inspection and physical status as can be ascertained by viewing through the relay glass window. The frequency of inspection will be monthly. This procedure will affect only relays that have not been replaced or upgraded with new coils.

#### ACTION 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 Item 1a and 1b and any other preventive and/or corrective measures taken or planned.

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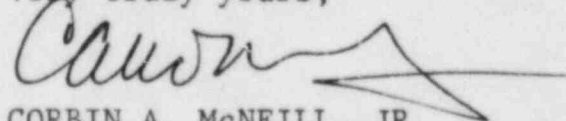
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RESPONSE

- 1.c The bases for continuing operation are:
1. Energized relays are functionally checked once per month by a formal surveillance program.
  2. A periodic inspection program has been on-going since 1980 for HFA Relays associated with the Reactor Protection System.
  3. The plant is accelerating the replacement of both energized and de-energized relay coils independent of inspection status.
  4. No failures of relays have occurred.

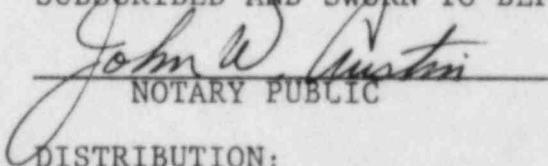
If further information is required or you have any questions regarding the responses, please contact Mr. Hartford Keith at phone number (315) 342-3840 extension 230.

Very truly yours,



CORBIN A. McNEILL, JR.  
CAM:HNK:jmk

SUBSCRIBED AND SWORN TO BEFORE ME THIS 6<sup>th</sup> DAY OF JULY 1984



NOTARY PUBLIC

JOHN W. AUSTIN, #4701224  
Notary Public - State of New York  
Appointment in Oswego County  
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