VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

W. L. STEWART
VICE PRESIDENT
NUCLEAR OPERATIONS

July 31, 1984

Mr. James P. O'Reilly
Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
Suite 2900
101 Marietta St., N.W.
Atlanta, Georgia 30323

Serial No. 184
NO/JHL/lms
Docket Nos. 50-280
50-281
50-338
50-339
License Nos. DPR-32
DPR-37
NPF-4
NPF-7

Dear Mr. O'Reilly:

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION UNIT NOS. 1 AND 2
SURRY POWER STATION UNIT NOS. 1 AND 2
RESPONSE TO I.E. BULLETIN NO. 84-02

We have reviewed I.E. Bulletin 84-02, "Failures of General Electric Type HFA Relays in Use in Class 1E Safety Systems", dated March 12, 1984. As a result of this review, corrective actions will be taken as described in the attachments. Based on a telephone conversation between Mr. S. A. Elrod, NRC and Mr. R. J. Hardwick, Jr., Vepco, an extension to July 31, 1984 was granted by the NRC for the submittal of this information.

The bulletin requested the following information to help the NRC evaluate the cost of the bulletin; staff time to perform requested review: 120 staff hours; staff time to prepare requested documentation: 20 staff hours.

Very truly yours,

W. L. Stewart

Attachments

IE11

cc: U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Mr. D. J. Burke
NRC Resident Inspector
Surry Power Station

Mr. M. W. Branch
NRC Resident Inspector
North Anna Power Station

Mr. James R. Miller, Chief
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Washington, D. C. 20555

Mr. Steven A. Varga, Chief
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ATTACHMENT 1

RESPONSE TO IEB 84-02
FAILURES OF GENERAL ELECTRIC TYPE HFA RELAYS IN USE IN
CLASS 1E SAFETY SYSTEMS

NORTH ANNA POWER STATION

1.a(1) All GE type HFA relays used in safety related applications in North Anna Units 1 and 2 will be replaced. The normally energized HFA relays will be replaced as soon as possible depending on parts availability. The replacement relays will be the new "Century Series" HFA relays which are both 1E and seismically qualified to the latest IEEE standards.

1.a(2) The Unit 1 normally de-energized relays are scheduled to be replaced during its next refueling outage. The Unit 2 normally de-energized relays are scheduled to be replaced during the August, 1984 refueling outage. The replacement relays will be the new "Century Series" HFA relays which are both 1E and seismically qualified to the latest IEEE standards.

1.b(1) No GE type HFA relays are installed in the Reactor Trip System of either North Anna unit. Therefore, monthly functional tests are not required.

1.b(2) Each North Anna Unit has only two normally energized, safety related HFA relays. These are direct current (D.C.) relays located in the 4160 Emergency Bus Undervoltage circuitry. Although the HFA relay failures described in IEB 84-02 involved A.C. HFA relays, North Anna has implemented monthly visual inspections of the four D.C. normally energized relays and plans to continue these inspections until the relays are replaced. The first inspection was performed in April, 1984 and to date, no deterioration of the coil or spool material has been found. During the first inspection, one of the relay coil bobbins was found to have a minor crack extending from the center of the bobbin. The exact cause of the crack is unknown at this time. Subsequent inspections have indicated that no further coil degradation has occurred.

1.c. The normally energized safety related HFA relays at North Anna are D.C. excited relays and at this time are not suspected to be subject to the same failure mechanism affecting the A.C. relays. However, these relays are currently being visually inspected on a monthly basis as a precaution. These inspections have been included in the station's Preventative Maintenance program. The Unit 1 relays will be functionally tested prior to the end of the current Unit 1 refueling outage as part of a Technical Specification required Periodic Test to verify ESF/Undervoltage performance. Each of the two relays per unit provides a starting signal to its respective Emergency Diesel Generator on an undervoltage signal. A failure of either relay to de-energize would result in a failure of its respective EDG to auto-start if an undervoltage condition existed. However, the affected EDG would not be rendered inoperable. The EDG would still automatically start on ESF actuation and could be started manually. In addition the redundant EDG would not be affected. These reasons provide a basis for continued operation of both North Anna Units until the normally energized relays are replaced.

2. Not applicable.

3. Not applicable.

4. All North Anna defined safety related HFA relays will be replaced with the new "Century Series" HFA relays as described in the response to item 1.a. Upon installation of these relays, any spare parts for these relays will have to be 1E qualified. At the present time, North Anna does not stock replacement parts for HFA relays. However, it is planned to stock spare and replacement parts for the Century series HFA relays. The Quality Control Department at the station is required to receipt inspect replacement parts to the requirements of the procurement document. This will ensure that only qualified replacement parts are purchased for use in the Century Series HFA relays in safety related systems. Therefore, appropriate administrative controls exist to ensure that the older coils are not used as replacement parts.

   Other types of safety related relays utilized at North Anna were investigated to determine if any generic concerns could exist. This investigation concluded that no generic concerns exist at the present time with regard to those relays.

ATTACHMENT 2

RESPONSE TO IEB 84-02
FAILURES OF GENERAL ELECTRIC TYPE HFA RELAYS IN USE IN
CLASS 1E SAFETY SYSTEMS

SURRY POWER STATION

1.a(1) All GE type HFA relays used in safety related applications in Surry Units 1 and 2 will be replaced. The normally energized HFA relays are on order and will be replaced as soon as possible depending on parts availability. The replacement relays will be the new "Century Series" HFA relays which are both 1E and seismically qualified to the latest IEEE standards.

1.a(2) The normally de-energized relays are on order and will be replaced upon receipt during the first outage of sufficient duration. The replacement relays will be the new "Century Series" HFA relays which are both 1E and seismically qualified to the latest IEEE standards.

1.b(1) No GE type HFA relays are installed in the Reactor Trip System of either Surry unit. Therefore, monthly functional tests are not required.

1.b(2) Each Surry Unit has only two normally energized, safety related HFA relays. These are direct current (D.C.) relays located in the 4160 Emergency Bus Undervoltage circuitry. Although the HFA relay failures described in IEB 84-02 involved A.C. HFA relays, Surry will implement monthly visual inspections of the four D.C. normally energized relays and plans to continue these inspections until the relays are replaced.

1.c The normally energized safety related HFA relays at Surry are D.C excited relays and at this time are not suspected to be subject to the same failure mechanism affecting the A.C. relays. However, all Safety-Related HFA Relays were visually inspected and the 10 pound tensile test was performed on relays without Tefzel spools. In addition, all HFA relays were electrically tested satisfactorily during recent refueling outages. Each of the two relays per unit provides a starting signal to its respective Emergency Diesel Generator on an undervoltage signal. A failure of either relay to de-energize would result in a failure of its respective EDG to auto-start if an undervoltage condition existed. However, the affected EDG would still be available as it could be started manually. In addition the redundant EDG would not be affected and the auto-start signals from ESF's would still be available. These reasons provide a basis for continued operation of both Surry Units until the normally energized relays are replaced.

1.d Replacement relays will be replaced upon receipt during the first outage of sufficient duration.

2. Not applicable.

3. Not applicable.

4. All Surry defined safety related HFA relays will be replaced with the new "Century Series" HFA relays as described in the response to item 1.a. Appropriate administrative controls will be implemented to assure that older and problematic HFA relay coils are not used as replacement parts in safety-related applications.