

ROCHESTER GAS AND ELECTRIC CORPORATION • 89 EAST AVENUE, ROCHESTER, N.Y. 14649

GRANGER E. GREEN
VICE PRESIDENT

TELEPHONE
AREA CODE 716 546-2700

June 10, 1974

Mr. James P. O'Reilly, Director
Directorate of Regulatory Operations
Region I
U. S. Atomic Energy Commission
631 Park Avenue
King of Prussia, Pennsylvania 19406

50-244



Subject: Abnormal Occurrence 74-9: Failure of Underfrequency
Relay during surveillance test
R. E. Ginna Nuclear Power Plant, Unit No. 1
Docket No. 50-244

Dear Mr. O'Reilly:

In accordance with Technical Specifications, Article 6.6.2a, the
attached report of Abnormal Occurrence 74-9 is hereby submitted.

Very truly yours,

Granger E. Green

Attachment

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1. Report Number: 50-244/74-9
- 2a. Report Date: June 10, 1974
- 2b. Occurrence Date: May 30, 1974
3. Facility: R. E. Ginna Nuclear Power Plant, Unit No. 1
4. Identification of Occurrence:

The abnormal occurrence is defined by Technical Specifications Article 1.9d: Failure of one or more components of an engineered safety feature or plant protection system that causes or threatens to cause the feature or system to be incapable of performing its intended function.

5. Conditions Prior to Occurrence:

The Plant was operating at a steady-state power level of approximately 1070 MW thermal.

6. Description of Occurrence:

At 0955 hours on May 30, 1974, during performance of the monthly surveillance test "Undervoltage and Underfrequency Protection 11A and 11B 4160 Volt Buses", an underfrequency relay (811/11A) was found to be inoperable. This device is a primary element in the logic scheme for tripping the Reactor Coolant Pumps (1/2 + 1/2 logic from each 4 kV bus) and also for the reactor trip logic if permissive P7 is present.

The procedure had been performed satisfactorily to the point where it was necessary to close the main contact for the 811/11A relay. The auxiliary and logic relays associated with the signal from the 811/11A relay did not operate. The redundant underfrequency relay for this bus (812/11A) was immediately tested and found to be operable (1/2 logic). The test was terminated at this point and the Rochester Gas and Electric Relay Department was contacted to inspect the suspect relay.

At 1055 hours procedure EM-117 was initiated to replace the suspect relay with a tested spare. After the spare relay was placed in service, the "Undervoltage and Underfrequency" procedure was completed without further difficulty. The suspect relay was visually checked on site for an apparent cause of failure, but none was found. The relay was then taken to the Rochester Gas and Electric Relay Department for further tests.

A Plant Operations Review Committee meeting was convened at 1320 hours to review the abnormal occurrence. The Committee's recommendation was to increase the test frequency of these relays until it could be determined what the actual cause of failure was. The test frequency was increased from monthly to twice a month. It

was also decided to leave the spare relay in service until the exact cause of failure could be determined.

The suspect relay was bench tested and found to be completely operable so it was decided to place it back in its normal circuit for the purpose of testing only. At this time the auxiliary and logic relays were operated several times by closing the contact of the 811/11A relay. The suspect relay was then removed and the spare placed back in service. EM-117 was completed at 1552 hours.

7. Designation of Apparent Cause of Occurrence:

At this time it is impossible to determine the apparent cause of the 811/11A relay failure. It appears to have been an intermittent failure.

8. Analysis of Occurrence:

There were no safety implications as a result of this occurrence since the redundant underfrequency relay (812/11A) for this bus was found to be operable. Both relays on the 11B bus (811/11B and 812/11B) were also operable.

9. Corrective Action:

- a. As noted in Item 6, the frequency of testing for these relays is to be increased from monthly to twice a month until a definite cause for failure can be determined.
- b. The Rochester Gas and Electric Relay Department is performing a continuing test on the suspect relay which will simulate normal operating conditions.
- c. The manufacturer has been notified of the problem and is also attempting to determine the cause of failure.

10. Failure Data:

- a. There had been two other failures with this type of relay prior to this occurrence. The first had occurred on January 31, 1972, which was reported as Abnormal Occurrence 72-2. The second failure involved the same relay which failed during the present test (811/11A). This occurred on April 26, 1974 and was reported as Abnormal Occurrence 74-7. On both occasions, an open capacitor was found on a printed circuit board within the relay. The complete printed circuit board was replaced and the relay was bench tested and tested in the circuit. The replacement printed circuit was a modification by the manufacturer (Westinghouse) to prevent overloading of this circuit.
- b. Equipment identification: Westinghouse, Type KF Underfrequency Relay, Style 671 B 287 A 10.