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April 16, 1974

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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

Subject: Abnormal Occurrence 74-4: Failure of 1C Safety Injection Pump to start manually from Bus 16
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 74-4 is hereby submitted.

Very truly yours,

Keith W. Amish

Keith W. Amish

Attachment

xc: Mr. John F. O'Leary

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1. Report No.: 50-244/74-4

2a. Report Date: April 16, 1974

2b. Occurrence Date: April 6, 1974

3. Facility: R. E. Ginna Nuclear Power Plant, Unit No. 1

4. Identification of Occurrence:

This 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:

At the time of the occurrence, the plant was in a hot shutdown condition.

6. Description of Occurrence:

On April 6, 1974, during the monthly performance of periodic test (PT 2.1), which verifies satisfactory Safety Injection pump head development, the 1C Safety Injection pump failed to start manually 2 of the 4 times tried when connected to Bus 16. It had been tested successfully when connected to Bus 14.

7. Designation of Apparent Cause of Occurrence:

The 1C Safety Injection pump can be operated from either Bus 14 or Bus 16. During a safeguard operating sequence, Bus 14 is the preferential Bus and Bus 16 is considered the alternate Bus. A lockout scheme exists between the two supply breakers to insure that only one breaker can be closed at a time. When the system is functioning properly, the lockout relay will energize when a breaker closure is called for, providing that all interlocks are satisfied. The sequence for proper operation is as follows:

(a) The lockout relay's plunger will force the trip bar downward and properly latch the breaker's mechanical closing mechanism.

(b) The movement of the trip bar closes a trip bar switch which then permits the breaker control relay to operate ("X" coil).

(c) Operation of the control relay reflects a closed "X" contact in the circuit for the breaker closing coil.

(d) The closing coil is then energized and the coil's armature will travel upward resulting in actuation of the breaker closing mechanism.

The cause of the intermittent failures was that the trip bar switch was closing prematurely. This allowed the breaker control relay to energize which in turn energized the breaker closing coil. However,

because the breaker's mechanical latch had not yet properly positioned the breaker's mechanical closing mechanism, the breaker would not close.

Although it did not contribute to the occurrence, another condition was noted during the investigation. A 1MFD capacitor in the control circuit was found to fail intermittently. This capacitor is connected in series with a 5 ohm resistor and they are in parallel with a normally open contact for the white breaker trip light and the 74BFD alarm relay. This intermittent failure caused a white light and alarm.

8. Analysis of Occurrence:

There were no safety implications because the pump did start from Bus 14, and also both the 1A and 1B Safety Injection pumps started satisfactorily. There were no consequences or potential consequences from the standpoint of public health and safety.

9. Corrective Action:

The lockout coil assembly and the tripper bar switch were adjusted so that the breaker's mechanical closing mechanism will latch into position before the trip bar switch closure is established. The 1MFD capacitor in the control circuit was replaced. The 1C Safety Injection pump was started successfully 6 times immediately after the adjustments were made and the pump was restored to normal service at 1600 hours on Sunday, April 7, 1974. The pump was also started successfully from Bus 16 on April 10 and April 11, 1974.

The Plant Operations Review Committee reviewed the abnormal occurrence and the Committee concurred that the adjustments that were made should prevent a repetition of the occurrence and that the continued monthly surveillance should verify that the Safety Injection system will respond promptly and perform its intended function.

10. Failure Data:

(a) Previous failure of the 1C Safety Injection pump to start from Bus 16 was reported to the AEC in a letter dated June 21, 1973 and listed as Abnormal Occurrences 73-3 and 73-4. After the June 1973 letter, Periodic Test (PT 2.1) was revised to require that the 1C Safety Injection pump be started from both Bus 14 and Bus 16. Since that time the pump has been manually started successfully from either Bus supply until this latest incident. Also, correct automatic starting of the 1C Safety Injection pump was verified during the recently performed Refueling Shutdown Surveillance Procedure RSSP 2.2. This is a test of the diesel generator automatic starting and carrying safeguards load.

The cause of this abnormal occurrence is different from abnormal occurrences 73-3 and 73-4 which were experienced on June 11 and 12, 1973 respectively. At first it was believed that the over-current trip device in the pump breaker was misaligned, however, the next day the breaker was removed and further inspection showed the operator

arm on the cell switch to be slightly bent. Investigation has been conducted by Westinghouse and Rochester Gas and Electric to install a cell monitor indication light to verify the continuity of lock-out relay logic of the breaker and this installation is under review by on-site and off-site review committees for installation in the near future.

(b) Equipment identification:

Westinghouse DB-50 Air Circuit Breaker 500 amp Rating.