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(TEMPORARY FORM)**

CONTROL NO: 8227  
FILE: INCIDENT REPORT FILE

FROM: Metropolitan Edison Co. Reading, Penna. R.C. Arnold		DATE OF DOC 7-31-75	DATE REC'D 8-2-75	LTR XXX	TWX	RPT	OTHER
TO: NRC		ORIG 1 Signed	CC	OTHER	SENT AEC PDR		
					SENT LOCAL PDR		
CLASS	UNCLASS XXX	PROP INFO	INPUT	NO CYS REC'D 1	DOCKET NO: 50-280		

**DESCRIPTION:**

Ltr. trans the following.....

**ENCLOSURES:**

A/O # 75-25 on 7-21-75, concerning Failure of a frequency relay for the "A" Diesel Generator to actuate.....

( 1 cy. Ltr. )

PLANT NAME: Three Mile Island # 1

**FOR ACTION/INFORMATION**

VCR 8-5-75

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Regulatory

File 9-1

## METROPOLITAN EDISON COMPANY

POST OFFICE BOX 542 READING, PENNSYLVANIA 19603

TELEPHONE 215 - 929-3601

July 31, 1975  
GQL 1333

Director  
Division of Reactor Licensing  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555



Dear Sir:

Docket No. 50-289  
Operating License No. DPR-50

In accordance with the Technical Specifications of our Three Mile Island Nuclear Station Unit 1 (TMI-1), we are reporting the following abnormal occurrence.

- (1) Report Number: AO 50-289/75-25
- (2a) Report Date: July 31, 1975
- (2b) Occurrence Date: July 21, 1975
- (3) Facility: Three Mile Island Nuclear Station Unit 1
- (4) Identification of Occurrence:  

Title: Failure of a frequency relay for the "A" Diesel Generator to actuate.

Type: An abnormal occurrence as defined by the Technical Specifications, paragraph 1.8d, in that failure of the "A" Diesel Generator frequency relay to actuate constituted a failure of one component of an engineered safety feature that threatened to cause the Diesel Generator to be incapable of performing its intended functions.
- (5) Conditions Prior to Occurrence:  

Power: Core: 99%

Elect.: 832 MWe (gross)

RC Flow:  $137 \times 10^6$  lb/hr

RC Press: 2160 psig

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8227

8226

RC Temp.: 579°F

PRZR Level: 220 inches

PRZR Temp.: 655°F

(6) Description of Occurrence:

On July 21 the A diesel generator was started and loaded for routine testing. It was noted by visual inspection that one of the three frequency relays (81-3) was not picked up. The other two frequency relays associated with the A diesel generator were picked up. It is believed that the generator was operating at 60 cycles/second at the time the relays were observed. The relays are set to pick up at 59 cycles/second.

The three frequency relays serve as an interlock that allows the breaker to close when the diesel generator is up to speed. The relays are connected in a two out of three logic so that failure of one relay does not prevent the breaker from closing.

The suspect relay was removed from service and the setting was checked on the bench. A replacement relay was tested and installed in the cabinet. The diesel generator was started and all three frequency relays were verified as having picked up when the generator was up to speed.

A bench test of the suspect relay revealed that the relay operated at 59.2 cycles per second. The internal connections were checked. One connection was tightened slightly; however, tightening the connection did not change the pick up value significantly and the connection was considered satisfactory.

The relay was set to 59.0 cycles per second and put back in the same position on the A diesel generator. The diesel was operated and it was verified that the relay picked up when the diesel was up to speed.

(7) Designation of Apparent Cause of Occurrence:

The apparent cause of this occurrence is not known but possible causes are:

- a. It has not been definitely established that the Diesel was operating at 60 cycles/sec. at the time that the frequency Relay was observed.
- b. Setting drift may have contributed to the failure in that the setting had drifted from 59 cycles per second to 59.2 cycles per second. This should not have kept the relay from being picked up at 60.0 cycles per second.

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- c. Dust or dirt may have caused the failure by becoming lodged in the bearings for the induction disk. The dirt, if present, may have become dislodged when the relay was removed from the cabinet for testing.

(8) Analysis of Occurrence:

It has been determined that failure of the 81-3 relay did not represent a threat to the health and safety of the public, in that:

- a. The 1A diesel generator was operable as 2 of the 3 frequency relays operated properly allowing the breaker to close.
- b. The B diesel generator was operable and one diesel generator is sufficient to supply necessary safety related equipment in the event of loss off site power.

(9) Corrective Actions:

In addition to the immediate corrective actions listed above long term corrective actions are as follows:

The relay cabinets for both diesel generators will be cleaned to reduce the possibility of dirt getting into the relays. The remaining 2 frequency relays for the A diesel generator will be cleaned and checked to assure that they are calibrated and operating properly. In addition, the voltage of the signal to the frequency relay will be checked to assure that adequate voltage is present to operate the relays.

The existing surveillance procedures for maintenance and calibration of the relays will be reviewed to assure that the procedures are adequate.

The Plant Operations Review Committee and Station Superintendent have reviewed and approved the above corrective actions and have taken steps to ensure completion of the yet to be completed long term corrective actions.

(10) Failure Data:

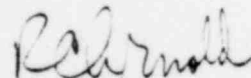
Westinghouse CF-1 Frequency Relay

Style 291 B995A10

Similar Occurrences: None

Sincerely,

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R. C. Arnold  
Vice President

RCA:CES:tas

cc: Office of Inspection and Enforcement, Region 1