



Nebraska Public Power District

COOPER NUCLEAR STATION
P.O. BOX 98, BROWNVILLE, NEBRASKA 68321
TELEPHONE (402) 825-3811

CNSS810165

April 2, 1981



Mr. K. V. Seyfrit, Director
U.S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region IV
611 Ryan Plaza Drive
Suite 1000
Arlington, Texas 76011

Dear Sir:

This report is submitted in accordance with Section 6.7.2.B.2 of the Technical Specifications for Cooper Nuclear Station and discusses a reportable occurrence that was discovered on March 6, 1981. A licensee event report form is also enclosed.

Report No.: 50-298-81-04
Report Date: April 2, 1981
Occurrence Date: March 6, 1981
Facility: Cooper Nuclear Station
Brownville, Nebraska 68321

Identification of Occurrence:

A condition which could lead to operation in a degraded mode permitted by the limiting condition for operation established in Section 3.5.F.1 of the Technical Specifications.

Conditions Prior to Occurrence:

The reactor was operating at a steady state power level approximately 93% of rated thermal power.

Description of Occurrence:

During modification of circuits for relay 27X3/1G, the relay was found deenergized.

Designation of Apparent Cause of Occurrence:

The relay coil failed. No abnormal conditions were found and no specific cause could be determined.

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Analysis of Occurrence:

Time delay relay 27X3/1G provides a permissive interlock for the closing of diesel generator #2 output breaker EG2. During normal operation this relay is energized and its contact is open. When voltage on 4160V Bus 1G is lost, relay 27X3/1G deenergizes. Closing of its contact is delayed for five seconds to assure that all pump breakers are tripped before diesel generator number 2 output breaker EG-2 is closed. Inoperative relay 27X3/1G nullified the five second delay interlock in breaker EG2 closing circuit.

Diesel generator #2 supplies emergency power to 4160 Bus 1G through breaker EG2 and 1GE. The normal and backup power source for Bus 1G is supplied from Bus 1B through breaker 1BG and 1GB respectively. Bus 1G is also supplied off site emergency power from the emergency transformer through breaker 1GS. The power source to Bus 1B is from the start up transformer or the normal station service transformer. If DG #2 was running with output breaker EG 2 open and a loss of voltage on 4160V Bus G was sustained due to an opening of breaker 1BG or 1GB, and the subject time delay relay was inoperative, DG output breaker EG 2 and Emergency Transformer breaker 1GS would have attempted to close simultaneously. This simultaneous breaker closing could have overloaded DG #2 and/or the Emergency Transformer due to the fact that the station load on Bus G had not been stripped and/or the two power sources were out of phase.

Should the loss of 4160V Bus 1G voltage occur with DG #2 not running, breaker 1GS would have closed instantly. DG #2 would have started and remained running. In this case, the failure of time delay relay 27X3/1G would have had no effect on operation of DG #2 or closing of EG 2. Bus 1G would have been energized by the Emergency Transformer. However, if the power source from the Emergency Transformer had been lost, then the same sequence of events as previously described (i.e., loss of Bus 1G voltage with DG running) would have occurred.

Redundant systems were available and operable. This occurrence presented no adverse potential consequences from the standpoint of public health and safety.

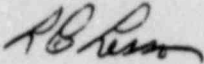
Corrective Action:

Relay 27X3/1G was immediately replaced with a spare relay. The new relay was bench tested and its correct operation verified. The corresponding relay 27X3/1F associated with DG #1 output breaker

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EG1 was checked and found to be operable. In the future, operation of these two relays will be verified per S.P. 6.3.4.3 during each refueling outage.

Sincerely,



L. C. Lessor
Station Superintendent
Cooper Nuclear Station

LCL:cg
Attach.