



Nebraska Public Power District

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

CNSS810327

June 3, 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.3 of the Technical Specifications for Cooper Nuclear Station and discusses a reportable occurrence that was discovered on May 5, 1981. A licensee event report form is also enclosed.

Report No.: 50-298-81-10
Report Date: June 3, 1981
Occurrence Date: May 5, 1981
Facility: Cooper Nuclear Station
Brownville, Nebraska 68321

Identification of Occurrence:

An observed inadequacy in a procedural control which could threaten to cause a reduction of degree of redundancy provided in the No Break Power System (NBP), an engineered safety feature system.

Conditions Prior to Occurrence:

The reactor was in the cold shutdown condition for refueling.

Description of Occurrence:

During performance of Surveillance Procedure 6.3.15.2, Station Battery Rated Load Test, a capacitor failed in the suppressor circuit of 1A static inverter causing the inverter to become inoperable.

Designation of Apparent Cause of Occurrence:

The principle contributors to the electrolytic capacitor's failure were aging and the affects of high ripple DC voltage from the battery charger supplying the inverter.

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Analysis of Occurrence:

1A static inverter converts DC voltage to AC voltage which supplies the station No Break Power Circuit. The DC bus supplying the 1A inverter is fed by a bank of batteries which are being charged continually by a battery charger.

When the battery bank is in the circuit, it acts as a large filter between the charger and static inverter filtering out the AC ripple voltage over the DC effective voltage. During the station battery load test the batteries are required to be disconnected from the DC bus. The batteries were disconnected from the DC bus under load. The inverter operated directly from the charger for a period of time. The load was then removed from the inverter, but it remained energized. Approximately 15 minutes later, the capacitor in the inverter's spike suppression circuit failed making the inverter inoperable. The static inverter was then taken out of service. The failed system was inspected and it was found that one silicon control rectifier (SCR) had failed in the charger supplying the inverter. The failure of the SCR caused excessive AC ripple thus causing the capacitor in the inverter to become hot and fail. The age of the electrolytic capacitor could possibly have contributed to its failure.

This occurrence presented no adverse affects from the standpoint of public health and safety.

Corrective Action:

A procedure change has been initiated to specify that prior to a battery discharge test, the battery charger will be verified to be operating properly, and that the load on the inverter will be shifted to an alternate source. This LER will be routed to appropriate personnel.

Sincerely,



L. C. Lessor
Station Superintendent
Cooper Nuclear Station

LCL:cg
Attach.