Nebraska Public Power District

COOPER NUCLEAR STATION
P.O. BOX 98, BROWNVILLE, NEBRASKA 68321
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CNSS800559

October 3, 1980

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 amended 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 August 13, 1980. Messrs. Spangler and Westerman were notified by telephone on August 13, 1980 and an initial notification was telecopied to your office on August 14, 1980 in accordance with the requirements of IE Bulletin 80-17. An updated licensee event report form is also enclosed.

Report No.: 50-298-80-30-1
Report Date: October 3, 1980
Occurrence Date: August 13, 1980
Facility: Cooper Nuclear Station
Brownville, Nebraska 68321

Identification of Occurrence:
Conditions which may have led to operation in a degraded mode permitted by a limiting condition for operation as delineated in Section 3.5.B of the Technical Specifications.

Conditions Prior to Occurrence:
Reactor power was at approximately 96% of rated power.

Description of Occurrence:
During routine surveillance testing of RHR motor operated valves, RHR-MO-34B, the "B" Loop suppression pool cooling throttle valve would not operate.

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Designation of Apparent Cause of Occurrence:

The operator is a Limitorque SMB-4. The motor was removed and the key between the motor pinion gear and the motor shaft was found sheared.

Analysis of Occurrence:

RHR-MO-34B is the RHR "B" Loop suppression pool cooling inboard throttle valve. It is a primary containment valve which isolates the torus from the RHR system. It is a normally closed valve. If open during LPCI initiation, it receives a close signal. The subject valve failed in the closed position. Had the subject valve failed in the open position, RHR-MO-39B, the outboard isolation valve, would have closed allowing LPCI injection with the "B" Loop. The torus cooling mode of the "B" Loop of RHR was inoperable, however torus cooling could have been supplied by the "A" RHR Loop. During this event, both diesel generators and the redundant loop of RHR were operable. This occurrence presented no adverse consequences from the standpoint of public health and safety.

Corrective Action:

The motor and motor shaft pinion gear key were replaced. The motor shaft was worn due to rotation inside the pinion gear. This is a repetitive occurrence, reference LER's 76-14 and 77-11. The key was sent to the manufacturer, Limitorque Corporation, for analysis. The results of that analysis indicate that during the last repair of the subject valve an improper key material was used on the motor shaft to pinion gear. All sizes of Limitorque operators use standard key stock except for sizes SMB-3, 4, and 5. RHR-MO-34B is a SMB-4. Limitorque attributes this failure to the wrong key stock. The proper key stock is 4140 steel with a hardness of between 280/320 Brinell. It should be noted that key stock of proper hardness was utilized for this repair. A records search has been made of all SMB-3, 4, and 5's to determine if any work has been done, since installation, that would have necessitated replacing the pinion gear to motor key. There appears to be no work that would have required key replacement. A general maintenance procedure has been written and approved to cover repairs to Limitorque operators and this key stock information has been included to prevent recurrence.

Sincerely,

L. C. Lessor
Station Superintendent
Cooper Nuclear Station

LCL:cg
Attach.