

**Nebraska Public Power District**

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

CNSS800217

April 10, 1980

Mr. K. V. Seyfrit
U.S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region IV
611 Ryan Plaza
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 12, 1980. A licensee event report form is also enclosed.

Report No.: 50-298-80-08
Report Date: April 10, 1980
Occurrence Date: March 12, 1980
Facility: Cooper Nuclear Station
Brownville, Nebraska 68321

Identification of Occurrence:

A condition which could have resulted in operation in a degraded mode permitted by Section 3.5.D of the Technical Specifications.

Conditions Prior to Occurrence:

The reactor was in the cold shutdown condition for refueling.

Description of Occurrence:

During the first scheduled five year inspection of the Reactor Core Isolation Cooling (RCIC) turbine, it was discovered that a piece was missing from a bucket on the turbine wheel and that an adjacent bucket was bent.

Designation of Apparent Cause of Occurrence:

The investigation indicates the damage to the RCIC turbine wheel was due to impact of a foreign object on the wheel during turbine operation.

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Analysis of Occurrence:

The RCIC system is designed to support the shutdown of the reactor in the situation where the reactor feedwater system is unavailable. The RCIC turbine drives the RCIC pump. The RCIC turbine is a Terry wheel turbine. The driving steam for the turbine issues from the steam chest through expanding nozzles at high velocity and enters the turbine wheel buckets where its direction is reversed. The seventy wheel buckets are semi-circular and are milled in the periphery of the solid wheel.

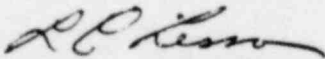
Investigation indicates a foreign object impacted on the turbine wheel causing the damage. The expanding nozzles limit the size of an object entering the turbine to less than 0.45 inches. A search failed to locate the object or identify any other damage to the system caused by it. The surface of the bucket exposed by the break had the same appearance as the rest of the wheel. A review of the operating history of the unit does not indicate an appreciable change in operating characteristics. Therefore, the time when the damage occurred cannot be determined, but does not appear to be recent.

At the time of discovery of this occurrence, the reactor was in cold shutdown and the RCIC system was not required to be operable. The system had met Technical Specification surveillance requirements and was considered operable at the time of the reactor shutdown. This occurrence presented no adverse consequences from the standpoint of public health and safety.

Corrective Action:

The damaged turbine wheel is being replaced and the RCIC system will be tested during the next reactor startup. The turbine vendor is continuing the investigation of the occurrence and should the final report indicate a cause different than that already identified, an amended report will be submitted.

Sincerely,



L. C. Lessor
Station Superintendent
Cooper Nuclear Station

LCL:cg
Attach.