Nebraska Public Power District

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

CNSS800481

August 8, 1980

Mr. K. V. Seyfrit
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 May 8, 1980. The event was discussed with your inspector during his May visit as documented in Inspection Report 80-08. If was fi t logged that the event was not reportable because it occurred following maintenance during an outage when the diesel generator was not required to be operable. After further review of the event, it seemed appropriate to report the event. However, proper tracking was not performed and thus, the late report. A licensee event report form is also enclosed.

Report No.: 50-298-80-27
Report Date: August 8, 1980
Occurrence Date: May 8, 1980
Facility: Cooper Nuclear Station
Brownville, Nebraska 68321

Identification of Occurrence:
Conditions which would have led to operation in a degraded mode permitted by a limiting condition for operation as delineated in Section 3.9.B of the Technical Specifications if the failure had occurred during plant operation.

Conditions Prior to Occurrence:
The reactor was in cold shutdown and had been in that configuration since March 1, 1980.

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Description of Occurrence:

During performance of a surveillance test to determine operability of the #2 diesel generator following scheduled maintenance and inspection, the #8 left cylinder failed.

Designation of Apparent Cause of Occurrence:

The failed pieces of the diesel generator were analyzed by Cooper Energy Services to determine the cause of the occurrence. Damage to the diesel included a broken liner, bent articulated rod, bent valves in the cylinder head, and broken piston pin bolts on the #8 left cylinder. The #8 right cylinder sustained damage to the water jacket bellows. The apparent cause of this occurrence was the failure of the piston pin bolts.

The report issued by Cooper Energy Services indicated that the articulated rod pin bolts and piston pin bolts had been previously stretched when the piston started to seize during recent successive starts. Subsequent operation allowed the iron piston movement against the chrome liner to overcome the partial seizing. The manufacturer is confident the bolts were initially installed properly or the diesel would have failed within a year of operation. The lock tabs were found tight on both the articulated rod pin bolts and the piston pin bolts, which would alleviate the possibility of the bolts becoming loose in service. Continued operation caused a rapid fatigue failure of the aft piston pin bolt as it probably carried more load than the forward bolt. The forward bolt then carried the entire load which caused a tensile failure of the forward bolt.

Analysis of Occurrence:

The diesel generators provide a redundant power source in the event of loss of off site power during an emergency situation to provide power for certain ECCS systems. At the time of the failure the other diesel generator was operable.

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

Corrective Action:

The failed components described earlier were replaced. In addition, the master rod was replaced. In order to determine whether any further damage had occurred, the liner pilot in the engine block and the crank pins were dye checked and found to be in good condition. The crankshaft web deflection was checked and found to be well within tolerance. All piston pin bolts were replaced and torqued. The articulated rod pin bolts were dye checked satisfactorily. The piston pins were sent to the vendor for analysis. It was determiend that this failure was unique and that our corrective action is complete.

Sincerely,

L C Lessor

L. C. Lessor
Station Superintendent
Cooper Nuclear Station

LCL:cg
Attach.