



Callaway Plant

May 1, 1989

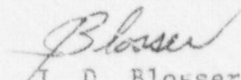
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CALLAWAY PLANT UNIT 1
FACILITY OPERATING LICENSE NPF-30
SPECIAL REPORT 89-03
INVALID DIESEL GENERATOR 'A' FAILURE
DUE TO WATER LEAKING FROM THE EXHAUST VALVE
COOLING JUMPERS INTO THE ROCKER ARM LUBE OIL RESERVOIR

The enclosed Special Report is submitted pursuant to Technical Specification (T/S) 4.8.1.1.3 concerning the invalid failure of Diesel Generator (D/G) 'A' due to a leaking O-ring on the exhaust valve cooling water jumpers which allowed water to leak into the rocker arm lube oil reservoir.


J. D. Blosser
Manager, Callaway Plant

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TPS/MKD:jlh

Enclosure

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Mr. A. Bert Davis
Regional Administrator
U.S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

American Nuclear Insurers
c/o Dottie Sherman, Library
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Records Center
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N. Date (Sandra Auston) (470)

Mr. Thomas Alexion (2 copies)
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Mail Stop 13-E-21
Washington, D.C. 20555

Mr. O. Maynard
Wolf Creek Nuclear Operating Corp.
P. O. Box 411
Burlington, KS 66839

Mr. Merlin Williams
Supt. of Regulatory Quality &
Administrative Services
Wolf Creek Nuclear Operating Corp.
P. O. Box 411
Burlington, KS 66839

Mr. R. W. DeFayette
Chief, Project Section 3A
U.S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

SPECIAL REPORT 89-03
INVALID DIESEL GENERATOR 'A' FAILURE
DUE TO WATER LEAKING FROM THE EXHAUST VALVE
COOLING JUMPERS INTO THE ROCKER ARM LUBE OIL RESERVOIR

On 3/30/89, at 0430 CST, emergency diesel generator (D/G) 'A' was declared inoperable due to cooling water leaking from the exhaust valve cooling water jumper O-rings on cylinder #8 into the rocker arm lube oil reservoir. This is an invalid failure which is reported per Technical Specification (T/S) 4.8.1.1.3.

This condition was discovered when the rocker arm lube oil reservoir high-high level alarm sounded. Approximately 1½ gallons per hour of jacket water was estimated to be leaking into the rocker arm lube oil reservoir.

The rocker arm lubrication system is designed to collect all the oil which has been pumped to the rockers and return that oil to the rocker arm lube oil reservoir. From the rocker arm lube oil reservoir, the oil is pumped through paper element filters back to the rockers.

Given this condition, upon an D/G engine start, the rocker arm pump would have begun pumping the water in the rocker arm lube oil reservoir through the filters. This amount of water would swell the filter elements stopping all flow. The rocker lube oil pump has an internal relief valve which will relieve back to the pump suction. No oil would be delivered to the rockers. In this mode of operation, the D/G will start and load as usual, and could run for approximately one hour without failing. Eventually, however, the rockers would seize and the D/G would fail. The engine could not be relied upon to perform its safety function.

The O-rings were found to be hardened, allowing the water to leak by.

The leaking O-ring on the exhaust valve cooling jumper was replaced. The rocker arm reservoir was drained and filled with appropriate lubricant. All remaining exhaust valve cooling jumper O-rings, on both D/G 'A' and 'B', were replaced. An Emergency Diesel Generator Reliability study is currently being undertaken. Part of the scope is to enhance the installation duration for engine O-rings. Procedure MSM-KJ-QK001, "Emergency Diesel Generator Inspection", will then be revised to reflect the appropriate duration.

The D/G 'A' was declared operable at 0930 on 3/31/89. The D/G was unavailable for 29 hours. T/S 3.8.1.1 action statements were satisfied. Since this failure did not occur during a test (valid or invalid), and therefore is not a valid failure, the surveillance test interval of T/S Table 4.8-1 is not affected. This position is consistent with Regulatory Guide 1.108.C.2.e.

The starting history of D/G 'A' as of this report date is summarized as follows:

<u>No. of Valid Tests</u>	<u>No. of Failures During Valid Tests</u>	<u>No. of Failures During Invalid Tests</u>
91	3*	6#

* Special Reports 84-02 & 87-10, LER 87-002

Special Reports 85-01, 85-02, 85-07, 86-01, 89-02

Surveillance tests are currently performed at least once per 31 days for D/G 'A'. This is in conformance with the schedule in T/S Table 4.8-1 which requires a test interval of not more than 31 days if the number of failures in the last 20 valid tests is one or less or the number of failures in the last 100 valid tests is four or less.