

WOLF CREEK

NUCLEAR OPERATING CORPORATION

John A. Bailey
Vice President
Operations

July 8, 1992

NO 92-0195

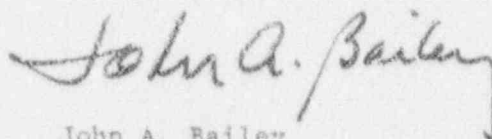
U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
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Washington, D. C. 20555

Subject: Docket No. 50-482: Special Report 92-002

Gentlemen:

The attached Special Report is being submitted in accordance with Technical Specification 4.8.1.1.3 concerning a valid failure of Emergency Diesel Generator "B".

Very truly yours,



John A. Bailey
Vice President
Operations

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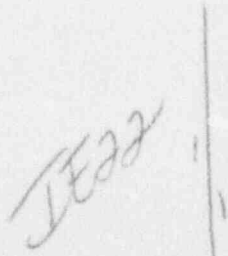
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SPECIAL REPORT 92-002

Valid Failure of Emergency Diesel Generator "B"
Due to Failure of a Temperature Control Valve

This report describes a valid failure of Emergency Diesel Generator (EDG) "B" which occurred on June 8, 1992. This report is being submitted in accordance with Technical Specifications 4.8.1.1.3 and 6.9.2.

DESCRIPTION OF EVENTS

On June 8, 1992, at 0044 CDT, EDG "B" was started for an operability test to be performed in accordance with surveillance procedure STS KJ-005B, "Manual/Auto Start, Synchronization, and Loading of Emergency Diesel Generator NEO2". At 0058 CDT, the EDG output breaker was closed and at 0110 CDT the EDG was fully loaded. At 0124 CDT, the Control Room received a Diesel Main Bearing Temperature High alarm and at 0128 CDT a Diesel Lube Oil Temperature High alarm was received. The Diesel Main Bearing Temperature High alarm is received when the temperature of one or more of the EDG's main bearings is 190 degrees Fahrenheit or higher and the Diesel Lube Oil Temperature High alarm is received when lube oil temperature is 165 degrees Fahrenheit or higher. Immediate attempts were initiated to lower lube oil temperature by throttling open EDG "B" Coolers Essential Service Water "B" Return Isolation Valve EF V080 and lowering EDG load. When these attempts did not lower lube oil temperature, further investigations revealed that Lube Oil Cooler Temperature Control Valve KJ TCV134 was not operating properly. This valve regulates lube oil flow to the lube oil cooler in order to maintain the proper temperature. At 0144 CDT, the decision was made to secure the EDG and declare it inoperable in order to determine the cause of the problem with valve KJ TCV134. Technical Specification 3.8.1.1, which requires the inoperable EDG be restored to operable status within 72 hours or be in at least Hot Standby within the next 6 hours and in Cold Shutdown within the following 30 hours, was entered.

During the investigation of the failure of valve KJ TCV134, the valve was disassembled by maintenance personnel and the thermal assemblies were removed. These thermal assemblies are commonly known throughout the industry as "power pills". The power pills are located inside the valve and provide control based on the temperature of the lube oil passing through the valve. An inspection of the power pills noted that at least one or more of the power pills had failed. New power pills were installed and the valve was reassembled. An EDG operability test was again performed in accordance with surveillance test procedure STS KJ-005B at 0335 CDT on June 9, 1992. The EDG was successfully paralleled to the bus and ran fully loaded for one hour as required by the surveillance test procedure. Lube oil and diesel main bearing temperatures remained within normal operating ranges indicating temperature control valve KJ TCV134 was functioning properly. At 0556 CDT, EDG "B" was declared operable and Technical Specification 3.8.1.1 was exited.

ROOT CAUSE AND CORRECTIVE ACTIONS

The root cause of the failure associated with the temperature control valve was the failure of two out of three power pills. The power pills are hydraulic units that position the valve in response to temperature. They are sealed units that contain a small cup of wax covered by a rubber diaphragm. Sitting on the diaphragm is a rubber/metal plug assembly. Increasing the temperature within a specified range causes the wax to expand, raising the plug a short distance out of the power pill. Three power pills in series provide the force and travel distance necessary to position the valve. The failure of the power pills has been attributed to extended storage time prior to installation. These power pills had been in storage for approximately four years prior to being installed in the temperature control valve on April 29, 1992. Replacement frequency for these power pills is every five years as recommended by the manufacturer and are replaced every third refueling outage. To ensure that newly installed power pills are not stored for an extended period of time, the power pills will be procured from the manufacturer shortly before planned replacement. Also, an Engineering Evaluation Request has been initiated to determine the feasibility of replacing the three temperature control valves associated with the EDG with similar valves which have a manual override. This manual override would allow the valve to be operated in the event that the power pills failed.

The newly installed power pills had also been in storage for approximately four years. A conservative decision was made to install these power pills in lieu of waiting for new power pills to arrive from the manufacturer because of the weather conditions that were present in the area which had the possibility of interrupting offsite power during the time that the EDG was inoperable. The newly installed power pills were replaced with recently received power pills. This was accomplished while the EDG was out of service for scheduled maintenance on July 7, 1992.

FAILURE CLASSIFICATION

The failure associated with the temperature control valve is considered a valid failure in accordance with Regulatory Position C.2.e(6) of Regulatory Guide 1.206, Revision 1 since it would ultimately have resulted in EDG damage or failure. This valid failure was the fifth valid failure of EDG "B" in the last 100 valid tests and therefore requires the EDG testing frequency to be increased to once every seven days as required by Table 4.8-1 of Technical Specification 3.8.1.1. This increased testing frequency did not begin until June 26, 1992, because of a personnel error. The failure to meet Technical Specification surveillance requirements will be discussed in a Licensee Event Report which will be submitted pursuant to 10 CFR 50.73(a)(2)(i). From the time of the last valid failure of EDG "B" on December 9, 1989 EDG "B" had undergone 40 successful valid tests prior to the failure on June 8. EDG "B" was out of service for a total of 28 hours, 12 minutes during this event.

EDG Reliability

In response to the Station Blackout Rule (10 CFR 50.63), Wolf Creek Nuclear Operating Corporation has established an EDG reliability monitoring program following guidelines contained in Nuclear Management and Resources Council (NUMARC) document 8700, "Guidelines and Technical Bases for NUMARC Initiatives Addressing Station Blackout at Light Water Reactors." Including the failure of EDG "B" on June 8, 1992, there has been one failure in the last 20 demands, one failure in the last 50 demands, and two failures in the last 100 demands for EDGs "A" and "B". This is below the trigger values for Wolf Creek Generating Station of three failures for the last 20 demands, five failures for the last 50 demands, and eight failures in the last 100 demands.