

Duke Power Company
Catawba Nuclear Generation Department
4800 Concord Road
York, SC 29745

M.S. TUCKMAN
Vice President
(803)831-3205 Office
(803)831-3426 Fax



DUKE POWER

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

Subject: Catawba Nuclear Station, Unit 2
Docket No. 50-414
Special Report
Invalid Failures of Diesel Generator 2B

Pursuant to Technical Specification 4.8.1.1.3 and 6.9.2, find attached a Special Report concerning the two Unit 2 Diesel Generator B (DG 2B) invalid failures that occurred on January 13, 1993.

Very truly yours,

A handwritten signature in cursive script that reads 'M. S. Tuckman'.

M. S. Tuckman

CRL/DG2B212.92

Attachment

xc: S. D. Ebnetter
Regional Administrator, Region II

W. T. Orders
Senior Resident Inspector

R. E. Martin, ONRR

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SPECIAL REPORT

CATAWBA NUCLEAR STATION DIESEL GENERATOR 2B INVALID FAILURE DUE TO HIGH CRANKCASE PRESSURE

Two invalid failures of Diesel Generator (DG) 2B occurred on January 13, 1993 due to a high crankcase pressure trip. This was caused by a failure of the Calcon sensor that is utilized in this application. Unit 2 was at 100% power at the time this failure occurred. The failures occurred during the performance of Operations (OPS) monthly Periodic Test (PT). DG 2B was on a monthly test frequency at the time this failure occurred. There have been 0 valid failures in the last 20 valid tests and 1 valid failure in the last 100 valid tests. DG 2B remains on a monthly operability test schedule in accordance with Technical Specification 4.8.1.1.2 Table 4.8-1. There is no unavailability time associated with these failures.

DG 2B was manually started (Start #705) on January 13, 1993 at 1350 for the OPS PT. Instrumentation and Electrical personnel (IAE) were scheduled to perform a functional verification on the crankcase pressure sensor, 2LDPT5420, which had been replaced on December 12, 1992, following spurious annunciator actuation. After the engine ran for approximately 60 seconds, it automatically tripped. All of the Group II trip annunciators were received at the time the trip occurred. OPS restarted the engine at approximately 1400 hours for IAE troubleshooting purposes. It was immediately noticed that the pneumatic logic system was losing air pressure. A check of the crankcase pressure sensor revealed that it was the source of the problem. Air was found to be blowing from its vent port, thus preventing the remainder of the system from pressurizing. The engine tripped again after the 60 second Group II lockout was removed. To further verify that 2LDPT5420 was the cause of the problem, IAE capped the instrument tubing line to the sensor to block the air leakage and had OPS start the engine again. The engine ran without problems and the PT was completed.

A new crankcase pressure sensor was acquired from stock and calibrated to the proper trip point. After the engine was shutdown, IAE replaced the failed sensor with the newly calibrated one. The engine was restarted for the functional verification and no problems were observed.

In checking the calibration of the sensor removed from the engine, it was found that the setpoint was now approximately 2 inches of water column above atmospheric pressure (INWC). Prior to this sensor being installed on December 15, 1992, it had been calibrated to the design setpoint of 5 INWC. It was noted that this sensor and the one that was installed were fairly sensitive to mechanical agitation.

Because of the concerns with the reliability of the pneumatic shutdown logic system, corrective actions have already been initiated to replace this system with a more reliable electrical system. Nuclear Station Modifications (NSMs) CN-11104 and CN-20486 were

completed on Unit 1 and Unit 2 DGs, respectively during 1EOC3 and 2EOC2 outages to replace the safety-related pneumatics with electrical components. NSM CN-11149 was completed on Unit 1 DGs during 1EOC6 outage, to remove all the non-emergency pneumatic trip instrumentation, including the crankcase pressure trip sensor, and replace it with an electrical system. This same modification (CN-20528) will be performed on Unit 2 during the present 2EOC5 outage.