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May 19, 1988

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

Subject: Catawba Nuclear Station, Unit 1
Docket No. 50-413
Special Report

Gentlemen:

Pursuant to Technical Specification 3/4.8.1.1.3, please find attached a Special Report concerning the Diesel Generator (D/G) 1A 7th valid failure in the last 100 Unit 1 valid tests which took place on April 19, 1988.

Pursuant to Regulatory Guide 1.108 and Technical Specification 3/4.8.1.1.3, supplemental information regarding this failure will be provided prior to June 1, 1988, in a future special report regarding the 8th and 9th D/G 1A valid failures which occurred on April 25, 1988 and May 5, 1988, respectively.

Very truly yours,

H. B. Tucker JGT

Hal B. Tucker

JGT/23/sbn

Attachment

xc: Dr. J. Nelson Grace, Regional Administrator
U. S. Nuclear Regulatory Commission
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Mr. P. K. Van Doorn
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DUKE POWER COMPANY
CATAWBA NUCLEAR STATION

SPECIAL REPORT REGARDING
DIESEL GENERATOR 1A VALID FAILURE ON APRIL 19, 1988 DUE TO
PNEUMATIC CONTROL SYSTEM PROBLEMS

While performing the operability verification of Diesel Generator (D/G) 1A on April 19, 1988, the D/G tripped during start #662 at approximately 0815 hours. This was the fifth Valid Failure in the last 20 Valid Starts on D/G 1A and the sixth in the last 100 Valid Starts. The surveillance interval was at every 7 days following the Valid Failure, which is in accordance with Technical Specification Surveillance 4.8.1.1.2. This is the seventh Valid Failure in the last 100 Valid Starts on Unit 1 D/Gs.

At 0815 hours, Work Request 27635 OPS was initiated to investigate and repair the cause of the D/G trip. Two starts did not identify any abnormal parameters associated with Group II switchover and non emergency trips. Instrumentation sensors associated with Lube Oil pressure, Crankcase pressure, and Pneumatic logic were inspected and proper calibration was verified. None the less, the sensors were replaced.

Troubleshooting continued on April 20, 1988. The proper calibration of Jacket Water temperature and Lube Oil temperature instrumentation was verified. The D/G was started and did not trip, but the trip sensors did not come up to pressure until a few seconds before Group II switchover. Instrument tubings associated with Lube Oil pressure, Lube Oil temperature, Bearing temperature, Jacket Water temperature, Crankcase pressure, and Vibration were pressurized to identify any leaks.

An orifice check valve, .004 orifice, was found to be leaking through its seat, causing depressurization of the pneumatic trip circuitry. The .004 orifice check valve was replaced, and also the P-3 shuttle valve was replaced although no problem was found. Three successful starts were performed on the D/G with all indications remaining normal.

On April 21, monitoring was continued while 3 engine starts were performed. All indications were found to be normal.

Duke Power Instrumentation and Electrical (IAE) personnel were not fully satisfied that the leaking check valve was significant enough to have caused the D/G trip, although no additional problems were identified at the time. An investigation of a subsequent failure of the D/G identified a potential generic design deficiency in the pneumatic control system. IAE personnel suspect that the deficiency likely contributed to the April 19, 1988 failure as well. The additional findings will be discussed in a future Special Report.

D/G 1A was unavailable for approximately 58 hours as a result of this problem. Unit 1 was in Mode 1, Power Operation, during this time. The availability of offsite power and D/G 1B's operability were verified as required by Technical Specifications.

[IIR C88-54-1]