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

Subject: Catawba Nuclear Station, Unit 1
Docket No. 50-413
Special Report
Invalid Failure of Diesel Generator 1B

Pursuant to Technical Specification 4.8.1.1.3 and 6.9.2, find attached a Special Report concerning the Unit 1 Diesel Generator (DG 1B) invalid failure which occurred on February 02, 1995.

Sincerely,

D. L. Rehn

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Attachment

xc: S. D. Ebneter, Regional Administrator

R. E. Martin, ONRR

R. J. Freudenberger, SRI

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SPECIAL REPORT
CATAWBA NUCLEAR STATION
DOCKET DOCKET NO. 50-413
DIESEL GENERATOR 1B INVALID FAILURE
DUE TO OVERCURRENT BREAKER TRIP DURING GOVERNOR TROUBLESHOOTING

An **invalid failure** of Diesel Generator (DG) 1B occurred on 02/02/95, due to the output breaker (1ETB18) tripping during troubleshooting activities on the electronic governor. Instrumentation and Electrical (IAE) personnel were attempting to determine the cause of the load drift problems which were observed during the performance of the Operability Periodic Test (PT) earlier this day. Unit 1 was in Mode 1 (Power Operations) at 100% power when this failure occurred. There have been 0 valid failures in the last 20 valid tests and 0 valid failures in the last 100 valid tests of DG 1B. DG 1B remains on a monthly operability test schedule in accordance with Technical Specification (TS) 4.8.1.1.2 Table 4.8.1. There are 13 hours of unavailability associated with the load drift problem, but none attributed directly to the overcurrent breaker trip event.

On 02/02/95, DG 1B was started and paralleled to the essential bus for its Operability PT. Approximately 15 minutes into the full load run at 5750 kW, load began to drift +/-200 kW. This was not a fast oscillation but a slower movement outside of the TS required band of 5600 to 5750 kW. The operator attempted to keep the load within the required band by adjustment of the Raise/Lower Speed pushbuttons. When the engine run was completed, IAE and Electrical Systems and Equipment (ESE) engineering personnel were requested to investigate the cause of the load drift. This investigation was done under Work Order #95006267-01 which was initiated following the previous month's run when the load drift was first observed. At that time, the Operability PT was successfully completed. The engine was started again (Start #1065) and loaded to several different power levels (1750 kW, 3000 kW, 4000 kW, 5000 kW) for approximately 5 minutes each with no load drift observed. The engine was then taken to full load and run for several minutes before the drift was again observed. No significan drift was observd when engine load was dropped to 3000 kW.

At this point, IAE believed the problem to be with the load sharing portion of the governor circuitry, so the droop potentiometer was adjusted per IP/0/A/3680/14, Procedure for Tuning Diesel Engine Governor. Several different settings were attempted, none of which appeared to correct the problem. It was during the course of this adjustment that an overcurrent breaker trip occurred. The operator manually shutdown the engine and the 50DGT relay was reset. The governor droop potentiometer was returned to its original position. The Failure Investigation Process (FIP) was initiated to pursue the cause for the load instability.

SPECIAL REPORT
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DIESEL GENERATOR 1B INVALID FAILURE
DUE TO OVERCURRENT BREAKER TRIP DURING GOVERNOR TROUBLESHOOTING

The overcurrent breaker trip was the result of the troubleshooting activities that are described above. This report documents only the invalid failure which result from the overcurrent relay actuation. The other runs associated with troubleshooting the load drift were not classified as invalid failures since the engine started properly, accepted load, and did not trip as a result of that problem. However, the slow drift was not a desirable situation. The FIP and PIP programs were used to determine the root cause and resolve that situation as documented in Problem Investigation Process (PIP) #1-C95-0145.

The overcurrent breaker trip is only active when the incoming breaker is closed on the emergency bus and the DG is operating in parallel with the utility grid. This trip is bypassed on an emergency start and would not have affected the DG had it been needed for a design basis event. The 50DGT relay is set to trip instantaneously at a point that prevents any damage to the generator and its associated components. The setup and/or tuning of the governor is such that adjustments have to be made while the engine is running. Therefore, unavoidable transients can occur in the process of obtaining the proper settings for the various potentiometers.

This is the second incidence of an overcurrent breaker trip occurring during the governor tuning procedure. On 3/14/94, during calibration of the electronic governor the output signal was lost when an analog test meter scale range was changed as documented in PIP #1-C94-0324.

At 1930 on 02/05/95, the DG 1B Operability PT was successfully completed (Start #1069) with no load drift observed. The root cause of the drift problem was found to be an oxidation layer between the wiper and the resistance coil on the Load Gain potentiometer for the electronic governor. This was corrected by exercising the potentiometer back and forth to clear any buildup that may have been present.