

Duke Power Company  
McGuire Nuclear Station  
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**DUKE POWER**

DATE: March 19, 1996

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

Subject: McGuire Nuclear Station, Unit 2  
Special Report No.: 96-002  
Problem Investigation Process No.: 2-M96-0505

Gentlemen:

Attached for your information is Special Report 96-002 concerning a valid failure of Diesel Generator 2B due to a component failure of Diesel Generator Battery Charger 2B. This event is considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

*T.C. McMeekin*  
For T.C. McMeekin

JWP/gts

Attachment

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**Duke Power Company  
McGuire Nuclear Station  
Safety Review Group Special Report**

Diesel Generator Special Report due to a component failure of Diesel Generator 2B Battery Charger on February 22, 1996, as documented on Problem Investigation Report (PIP) 2-M96-0505.

**Special Report No.: 96-002      Date of Report:      March 19, 1996**

On February 22, 1996, Diesel Generator 2B was being run for the weekly Tech Spec surveillance start and load test per procedure PT/2/A/4350/02B, Diesel Generator 2B Operability Test. The Control Room received alarm "D/G B 125 VDC CTRL PWR TRBL". The battery charger DC voltmeter indicated 118 VDC, as opposed to the normal 129 - 132 VDC, and the DC ammeter indicated 0 ADC. The operability run was successfully completed and Diesel Generator 2B was shutdown.

This was the third valid failure in the last 20 valid tests and the fourth valid failure in the last 100 valid tests of Diesel Generator 2B. On a unit basis, this was the sixth valid failure in the last 100 valid tests of Diesel Generators 2A and 2B. Surveillance testing is currently on a weekly frequency; therefore, the frequency will remain weekly per the requirements of Technical Specification 4.8-1 (Diesel Generator Test Schedule).

Investigation revealed that several components failed including surge suppresser D1, diode D6, output fuse F1, capacitors C16 and C17, and resistors R37 and R38. It is believed that surge suppresser D1 had failed open prior to this event. The purpose of surge suppresser D1 is to protect the battery charger SCR bridge assembly from transient voltages. Diode D6 probably developed excess leakage prior to failing shorted. The excess leakage current allowed the AC current through the bridge snubber circuit, consisting of capacitors C16 and C17 and resistors R37 and R38, to increase and begin heating the resistors. When the final failure of diode D6 occurred, this caused output fuse F1 to open immediately. The loss of load on the power transformer led to a voltage spike that was passed to the SCR bridge with little protection by the surge suppresser D1. This caused capacitors C16 and C17 to short as the high voltage arced across the capacitor dielectric. At this time, the resistors R37 and R38 were suddenly subjected to large AC currents and overheated rapidly, leading to their disintegration. Diesel Generator 2B was inoperable during the time period of repair.

As a result of this event, surge suppresser D1, capacitors C16 and C17, and resistors R37 and R38 are scheduled to be replaced in Diesel Generators 1A, 1B, and 2A Battery Chargers. In addition, this component replacement has been added to the McGuire Preventive Maintenance (PM) Program.