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Docket No. 50-461

10CFR50.36

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

Subject: Special Report: Valid Test Failures of Division II
Diesel Generator at Clinton Power Station (CPS)

Dear Sir:

Clinton Power Station (CPS) Technical Specification 4.8.1.1.3 requires all diesel generator failures, valid or non-valid, to be reported to the NRC within 30 days pursuant to Specification 6.9.2, SPECIAL REPORTS. Due to a valid failure of the Division II Diesel Generator (DG1A) during surveillance testing on September 27, 1993, the attached Special Report is being submitted in accordance with the CPS Technical Specifications to provide the information required by Regulatory Guide 1.108, Revision 1, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Regulatory Position C.3.b.

Submittal of this letter satisfies the requirements of CPS Technical Specifications 4.8.1.1.3 and 6.9.2 for submitting a Special Report for September 27, 1993 diesel generator failure

Sincerely yours,

Richard F. Phares
Director, Licensing

JLP/nls

Attachment

cc: NRC Clinton Licensing Project Manager
NRC Resident Office, V-690
Regional Administrator, Region III, USNRC
Illinois Department of Nuclear Safety

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Special Report

This Special Report addresses the valid failure of the Division II Diesel Generator (DG1B) which occurred on September 27, 1993. Specific information on the event is provided below.

Description of Event/Cause of Failure

At approximately 1731 hours on September 27, 1993, DG1B was started for surveillance per Clinton Power Station (CPS) Procedure 9080.22, "Diesel Generator 1B-ECCS Integrated." This procedure is normally performed when the plant is in cold shutdown or refueling to satisfy CPS Technical Specification requirement 4.8.1.1.2.e.8.

During the performance of Section 8.2, which demonstrates that the diesel generator starts and reaches rated voltage and frequency within 12 seconds of an emergency core cooling system (ECCS) test signal, the diesel generator failed to reach its rated voltage of 4160 volts (+/- 10%). The actual voltage achieved was 3595 volts, which was less than the minimum voltage of 3740 volts.

When Operations determined that the voltage was less than the minimum required to meet the Technical Specifications, voltage was manually raised by adjusting the voltage regulating potentiometer. Voltage immediately increased to 4100 volts. Maintenance work request (MWR) D53606 was written to initiate investigation and corrective maintenance on the voltage regulating potentiometer. During maintenance troubleshooting it was found that the potentiometer contacts were not making full contact in a range corresponding to 3500 volts to 4100 volts. Cleaning the contacts did not correct the problem, however adding slight finger pressure to the contacts allowed full contact to be made and the potentiometer tested satisfactorily. The cause of the failure has been determined to be insufficient contact pressure between the contacting surfaces.

Corrective Action

Condition Report (CR) 1-93-09-033 was written to investigate the root cause and corrective action for the diesel generator failure. The potentiometer had exhibited normal end-of-life wear as evidenced by var and amperage oscillations during a monthly surveillance in December 1992. The potentiometer was replaced in July 1993, under MWR D32555, with an in-stock potentiometer received in 1987, and was the only item in stock. Subsequent starts of the diesel were conducted satisfactorily until the September 27, 1993 failure. Discussions with the manufacturer and researching the NPRDS data base for similar occurrences have confirmed that this type of failure has occurred in the past at other nuclear facilities. However, this type of failure has never occurred at CPS. The manufacturer stated that contact pressure checks to improve the component's

reliability have been implemented recently at the factory, however, because of the age of the item in stock, it was determined that the failed component never received the factory check.

The failed voltage regulating potentiometer was replaced on DG1B on September 28, 1993, with a potentiometer which had received the contact pressure check in the factory and the diesel was verified to satisfactorily start using CPS Procedure 3506.01, "Diesel Generator and Support Systems." A surveillance to meet the Technical Specification requirement to demonstrate the ability of the Division II diesel generator to reach the required rated voltage was performed on September 29, 1993.

At the next scheduled inspection of Divisions I and III diesel generators, the potentiometers will be inspected, tested, and replaced, if necessary. Also, the manufacturer has stated that contact pressure checks have been instituted which should minimize the potential for failures in future replacements. This failure is being investigated under 10CFR21, and should it be determined that the failure is reportable, a separate report will be submitted.

Testing Intervals

This failure of DG1B was only the fourth valid failure in its last 100 starts. The last valid failure of the Division II diesel generator occurred on March 28, 1992, when the electronic governor control power supply failed during routine maintenance operations. This was only the first valid failure of DG1B in its last 20 starts. Since the number of valid failures in the last 20 starts is less than two, no increase testing from the current monthly frequency is required.