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Docket No. 50-461

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

Subject: Special Report: Non-valid Test Failure of Division 1 Diesel Generator at Clinton Power Station (CPS)

Dear Sir:

CPS Technical Specification 4.8.1.1.3 requires all diesel generator failures, valid or non-valid, be reported to the Nuclear Regulatory Commission (NRC) pursuant to Technical Specification 6.9.2, SPECIAL REPORTS, within thirty days. Due to a trip of the Division 1 Diesel Generator (DG1A) during surveillance testing on January 9, 1992, this Special Report is being submitted in accordance with CPS Technical Specification 4.8.1.1.3 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.

Description of Event

At approximately 1525 hours on January 9, 1992, DG1A was manually started to demonstrate its operability per surveillance procedure 9080.01, "Diesel Generator 1A (1B) Operability-Manual". During the surveillance test, DG1A reached the required voltage and frequency within the time specified by the Technical Specifications. However, at 1528 hours, immediately following synchronization of DG1A with offsite power and closure of the output breaker, DG1A tripped due to reverse power. DG1A was declared inoperable. At 1533 hours, DG1A's output breaker was reset.

At 1709 hours, DG1A was manually started to confirm the suspected cause of the reverse power trip. DG1A was successfully synchronized with offsite power at 1716 hours and run at full load for approximately 19 minutes without any abnormalities noted. The successful maintenance run confirmed that the reverse power trip of DG1A was caused by improper manual loading following synchronization with offsite power. As a result, it was concluded that DG1A had been restored to operable status at 1533 hours when its output breaker was reset.

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At 1849 hours, DG1A was manually started to demonstrate its operability per surveillance procedure 9080.01. DG1A was successfully synchronized with offsite power and fully loaded. The surveillance test was successfully completed at approximately 2020 hours. No difficulties were experienced in synchronizing or loading DG1A subsequent to the reverse power trip. As a result, it has been concluded that the reverse power trip was caused by operating error. In accordance with Regulatory Guide 1.108, Regulatory Position C.2.e(2), this trip has been classified as a non-valid failure.

Corrective Actions

As discussed above, the reverse power trip of DG1A has been attributed to operating error. Surveillance procedure 9080.01 currently contains a caution statement which reminds the operator to be prepared to raise diesel generator load to at least 200 KW immediately after diesel generator output breaker closure. Loading the diesel generator immediately after closing its output breaker will prevent a reverse power trip.

Synchronizing and loading a diesel generator is a routine procedure but it does require a certain degree of operator technique. Synchronizing the diesel generator involves: (1) adjusting the diesel generator's voltage with its voltage regulator control switch so that the diesel generator's output voltage is slightly lower than the offsite power voltage, (2) adjusting the diesel generator's speed with its governor control switch so that the diesel generator's output frequency is slightly greater than the offsite power frequency, and (3) closing the diesel generator's output breaker with its control switch as the synchroscope's pointer nears the vertical position and the synchronizing lamps become dark. Upon synchronization, the diesel generator's load is then increased by adjusting the diesel generator's speed (i.e., increasing the torque applied to the generator) using the governor control switch. As stated above, load must be manually applied to the diesel generator immediately after closure of its output breaker in order to prevent "motoring" of the generator and the associated reverse power trip. At the same time, voltage regulator adjustments are also required to obtain the correct field excitation relative to the desired reactive loading/power factor. In this case, the manual load adjustment was not made quickly enough to prevent the reverse power trip.

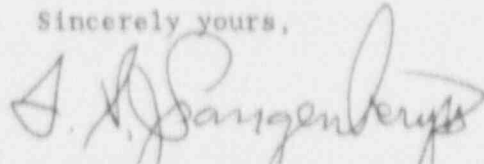
The operator involved in this event is experienced and has successfully performed this evolution many times. In addition, as noted above, the testing procedure currently contains a caution statement to remind the operator of this loading requirement. As a result, no further corrective action is considered necessary in response to this event.

Test Intervals

The reverse power trip has been classified as a non-valid failure. As of January 9, 1992, DG1A had experienced six valid failures in the last 100 valid tests* and one valid failure in the last twenty valid tests. In accordance with CPS Technical Specification Table 4.8.1.1.2-1, DG1A continues to be tested at least once per 31 days.

This letter satisfies the requirements of CPS Technical Specifications 4.8.1.1.3 and 6.9.2 for submitting a Special Report for diesel generator failures.

Sincerely yours,



F. A. Spangenberg, III
Manager, Licensing and Safety

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

* Per NRC letter dated January 25, 1991, one particular test performed on May 15, 1990 is not included in this total.