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**ILLINOIS  
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Docket No. 50-461

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

Subject: Special Report: Valid Failure of Division II  
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, to be reported to the Nuclear Regulatory Commission (NRC) pursuant to Technical Specification 6.9.2, SPECIAL REPORTS, within thirty days. This Special Report is being submitted as a result of a failure of the power supply for the electronic speed controller for the Division II Diesel Generator (DG1B) which was discovered on March 28, 1992. In accordance with CPS Technical Specification 4.8.1.1.3, 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 is provided below.

Description of Event

At approximately 0541 hours on March 28, 1992, during the performance of routine refueling outage maintenance, DG1B was manually started per CPS procedure 3506.01, "Diesel Generator and Support Systems (DG)," in preparation for performance of hot alignment of the fuel racks. DG1B reached the minimum required voltage and frequency within the time specified by the Technical Specifications. However, the frequency stabilized at approximately 63 Hz (which is outside the 60 +/- 1.2 Hz range required by the Technical Specifications) and engine speed could not be manually controlled from the main control room. At approximately 0543 hours, DG1B was manually shut down without being loaded. As the diesel generator was already inoperable for the planned refueling outage maintenance, the diesel generator remained inoperable until completion of the planned and corrective maintenance.

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Troubleshooting performed under Maintenance Work Request (MWR) D10344 determined that the power supply to the governor electronic control unit had failed. This resulted in DGLB engine speed being controlled by the backup mechanical governor. [The tandem diesel engines of DGLB each utilize Woodward EGB-13P governors which are electrically controlled, proportional output actuators with an integral backup mechanical (centrifugal) governor. The EGB-13P governor is particularly suited for use with tandem diesel generator units since a single electric control unit can be used with two proportional actuators connected in series with the control unit's output. This allows each actuator to receive the same current signal, resulting in the same amount of fuel being supplied to each engine, thus ensuring synchronous operation of the two diesel engines driving the common, center-mounted generator. The mechanical governor controls engine speed during startup and also functions to prevent engine runaway should the electronic control unit fail in such a manner as to call for maximum fuel. The speed setting of the mechanical governor is slightly higher (approximately 5%) than that of the electrical controller.]

Following replacement of the failed power supply, DGLB was again manually started per CPS procedure 3506.01. DGLB achieved the required voltage and frequency within the time specified by the Technical Specifications and automatically maintained the voltage and frequency within the required range. The diesel generator was successfully synchronized with offsite power and loaded to rated conditions. No difficulties in maintaining the frequency within the required range or controlling DGLB speed from the main control room were experienced during this subsequent operation of DGLB. Operability of DGLB was successfully demonstrated by performance of CPS surveillance procedure 9080.01, "Diesel Generator 1A (1B) Operability - Manual," on April 3, 1992 following completion of the planned maintenance activities.

CPS has initially determined that this power supply failure should be considered a valid failure per Regulatory Guide 1.108, Regulatory Position C.2.e(8) since no work had been performed on the power supply during the planned maintenance, and since operation with the engine speed being controlled by the mechanical governor resulted in the generator frequency not being maintained within the range required by the Technical Specifications. If further evaluation determines that DGLB would have been capable of assuming the required load within and for the time prescribed during an emergency with engine speed being controlled by the mechanical governor, this event will no longer be considered a diesel generator failure (valid or non-valid).

#### Corrective Actions

As discussed above, troubleshooting of this failure was conducted under MWR D10344. The connectors to the governor, magnetic pickup and tachometer, as well as all fuses within the control panel, were inspected. No signs of damage or failure were observed. Troubleshooting of the control circuit determined that the electronic governor control unit power supply had no output voltage when the proper input voltage was applied. As the fuse for the power supply had not blown, the power supply was determined to have failed. Following replacement of the power supply, DGLB operated properly (i.e., generator frequency was controlled within the required range, and

engine speed was able to be manually controlled from the main control room).

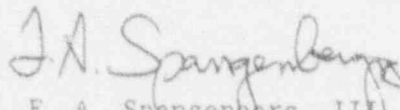
The cause of the power supply failure has not yet been determined. The failed power supply will be sent to Woodward Governor for a failure analysis. In addition, IP has conducted searches of the CPS maintenance history and the Institute of Nuclear Power Operations (INPO) Nuclear Plant Reliability Data System (NPKDS) and requested input from Woodward in order to determine the reliability of these power supplies. The results of the CPS maintenance history search determined that this was the first failure of this power supply at CPS. No failures were found in NPKDS. Information obtained from Woodward indicates that the industry failure rate for this power supply is low. As a result, IP considers this failure to be an isolated event and no further corrective actions are currently planned. If the failure analysis to be performed by Woodward identifies a plant-specific root cause for the failure, IP will evaluate the need for further corrective actions.

#### Test Intervals

The failure of the electronic governor control power supply has initially been classified as a valid failure. As of March 28, 1992, DG1B had experienced five valid failures in all 93 valid tests performed on DG1B, and it had experienced one valid failure in the last 20 valid tests performed on DG1B. In accordance with CPS Technical Specification Table 4.8.1.1.2-1, the test frequency for DG1B has been increased to at least once per 7 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

DAS/alh

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