

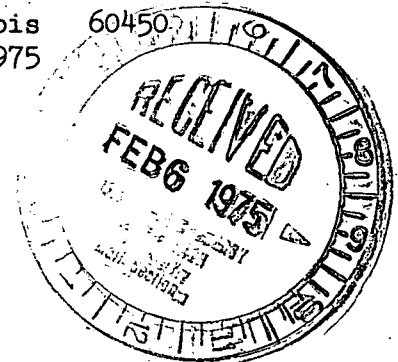


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**Regulatory Docket File**

BBS Ltr. #63-75

Dresden Nuclear Power Station  
 R. R. #1  
 Morris, Illinois 60450  
 January 30, 1975



Mr. James G. Keppler, Regional Director  
 Directorate of Regulatory Operations-Region III  
 U. S. Nuclear Regulatory Commission  
 799 Roosevelt Road  
 Glen Ellyn, Illinois 60137

**SUBJECT: REPORT OF ABNORMAL OCCURRENCE PER SECTION 6.6.A OF THE TECHNICAL SPECIFICATIONS  
UNIT 2/3 DIESEL GENERATOR TRIP ON MECHANICAL OVERSPEED**

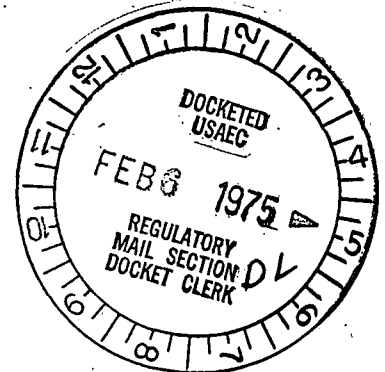
- References: 1) Regulatory Guide 1.16 Rev. 1 Appendix A  
 2) Notification of Region III of AEC Regulatory Operations  
 Telephone: P. Johnson, 1000 hours on January 21, 1975  
 Telegram: J. Keppler, 1113 hours on January 21, 1975

Report Number: 50-237/75-4

Report Date: January 30, 1975

Occurrence Date: January 20, 1975

Facility: Dresden Nuclear Power Station, Morris, Illinois



**IDENTIFICATION OF OCCURRENCE**

On January 20, 1975 at 1445 hours, the 2/3 diesel generator tripped on Mechanical Overspeed.

**CONDITIONS PRIOR TO OCCURRENCE**

On January 20, 1975 at 1445 hours, unit 2 was in shutdown for a refueling outage and unit 3 was in the RUN mode with a power level of 1300 Mwt and 405 MWe.

**DESCRIPTION OF OCCURRENCE**

On January 20, 1975 the U-2/3 Diesel Generator was shutdown following a run of about six hours. About ten minutes later, at 1445, an attempt was made to manually start the diesel. A trouble alarm was received and the frequency meter was noted to have pegged. Upon investigating, the diesel generator was found tripped on mechanical overspeed.

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DESIGNATION OF APPARENT CAUSE OF OCCURRENCE (Design Error)

The apparent cause is the practice of resetting the droop at 5 after the engine is shutdown.

Normal procedure is to set the diesel speed at 61 hertz with droop set at 50, at no load. After the diesel is shutdown, the droop is set to -5". Under no load conditions this droop setting is equivalent to 2 hertz speed change. As a result, when the diesel is restarted with the droop set a "5" after having been shutdown with the engine set at 61 HZ, the engine will attempt to run at 63 HZ. With the engine and governor both hot and therefore quite responsive, the diesel will have a tendency to overspeed. This condition was in fact duplicated by a service representative.

This condition has not occurred previously because the droop is normally reset to 50 prior to normal surveillance restart. Restart of a hot engine has been an infrequent occurrence at the station.

ANALYSIS OF OCCURRENCE

The safety of the plant and public was not jeopardized from this occurrence. Unit 2 was in shutdown and all required ECCS Equipment was demonstrated operable. Unit 3 Diesel was operable and the ECCS testing was in progress when the 2/3 Diesel Generator was declared operable.

CORRECTIVE ACTION

The immediate corrective action was to test the required ECCS equipment. Upon checking the diesel generator, nothing wrong could be found. The diesel had been shutdown for about an hour when another attempt was made to start the diesel. This time the diesel started satisfactorily and was declared operable. ECCS testing on Unit 3 was then halted. A hot restart of a diesel is an infrequent occurrence, and so this problem has not occurred before.

The station contacted Electromotive Division in LaGrange, Illinois to discuss the overspeed condition and what may have caused it.

Mr. McNamara of EMD was asked to comment on two theories and to suggest possible causes.

He indicated that a hot engine with a hot governor would respond rapidly to speed changes and if the speed setting were a little higher than 61 hertz could possibly have caused the overspeed condition.

He felt that fuel leaking into cylinders from the injectors after shutdown would have caused a rich mixture and inefficient burning and thus would probably not have contributed to an overspeed condition.

He suggested that a sticky injector linkage may have hampered governor action and could have caused an overspeed condition. He referred the station to a procedure for checking injector linkages. This was completed by station maintenance personnel with no indication of sticky linkages found.

He suggested checking the actual overspeed trip setting which was satisfactorily completed 27 January in the presence of a representative from Western Engine Company. Normal diesel speed is 900 RPM and overspeed setting was 1000 RPM.

In addition, the governor was checked for freedom of movement and for proper response from the Control Room. All indications were satisfactory.

On January 27, 1975 a representative from Western Engine Company and was able to duplicate the overspeed trip of 20 January. At this time he verified the proper setting for the governor limits, the value of the droop settings specified in the operating procedure, and the actual overspeed setting as previous indicated.

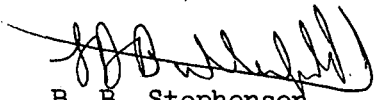
Because of the change in speed setting caused by droop, a change in the operating procedure was recommended by Mr. Norwich of Western Engine Company. He recommended using the same droop values on the governor, but the value of droop, 0 to 5, set for autostart should be set before the engine is shutdown rather than afterward as is present practice. A procedure change has been initiated to accomplish this.

#### FAILURE DATA

There have been no other failures of this type.

#### EQUIPMENT IDENTIFICATION

Diesel Generator  
Manufacturer: Elector-motive Division, G.M.  
Model: S20E4GW  
Serial No.: 1157

  
B. B. Stephenson  
Superintendent

BBS:LD:smp

File/AEC