



# Pennsylvania Power & Light Company

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April 30, 1985

Dr. Thomas E. Murley  
Regional Administrator, Region I  
U.S. Nuclear Regulatory Commission  
631 Park Avenue  
King of Prussia, PA 19406

SUSQUEHANNA STEAM ELECTRIC STATION  
SPECIAL REPORT - NON-VALID DIESEL FAILURE  
ER 100450 FILE 841-23  
PLAS-070

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Docket No. 50-387  
License NO. NPF-14

Dear Dr. Murley:

This special report documents the "C" Diesel Generator Non-Valid Failure as required by Regulatory Guide 1.108, Section C.3.b, and Technical Specification 4.8.1.1.3.

Regulatory Guide 1.108, Section C.3.b, requires reporting all diesel generator failures, valid or invalid. At 1925 on March 29, 1985, the "C" Diesel Generator automatically started, but then tripped on overspeed. Investigation revealed a broken lug on the positive terminal at 125 VDC Distribution Panel 1D634 breaker 05 which supplies power to the "C" Diesel Generator primary start circuit and the generator voltage regulator. Modification work was in progress in the 125 VDC Distribution Panel when the event occurred. De-energizing the primary start circuit caused the emergency start relay to drop out. This relay has contacts in the secondary start circuit which caused the diesel to start. Since power was interrupted to the generator voltage regulator, the regulator was in a shutdown state, causing the generator output to be zero. The "C" Diesel Generator accelerated much faster than during a normal start due to starting air being injected into the cylinders, up to 660 rpm, the mechanical overspeed trip setpoint. The starting air on a normal start shuts down at 280 rpm as sensed in the primary start circuit. The secondary control circuit starting air shut-off signal also originates in the primary start circuit, which was de-energized.

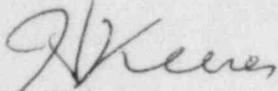
The diesel generator overspeed was caused by a combination of the following conditions: The speed input for the electronic governor is sensed from the output of a potential transformer located at the generator output. Since the generator output was zero volts, the electronic governor was not operational. Starting air continuously being injected into the cylinders created higher engine efficiency, resulting in a faster than normal acceleration. The mechanical governor response was not adequate to prevent the overspeed. This start was initiated by a loss of control power to the primary start circuit, which is not a valid start signal. There were no adverse effects to the

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diesel generator due to this start and overspeed trip. The broken terminal lug was replaced and the diesel was successfully restarted at 2040 on March 29, 1985.

The Diesel Generator Start Log indicated there is one (1) diesel failure in the last one hundred (100) starts. The diesels are on a test interval of every thirty-one (31) days, per Regulatory Guide 1.108, Section C.2.d.



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DJG/pjg

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