

# The Light company

Houston Lighting & Power South Texas Project Electric Generating Station P. O. Box 289 Wadsworth, Texas 77483

September 21, 1995

ST-HL-AE-5182

File No.: G02

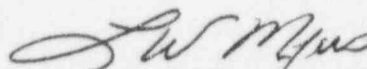
10CFR50.36(c)(5)

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555

South Texas Project Electric Generating Station  
Unit 1  
Docket No. STN 50-498  
Special Report Regarding a Valid Failure of  
Standby Diesel Generator #12 on August 23, 1995

Pursuant to the South Texas Project Electric Generating Station Technical Specifications 4.8.1.1.3 and 6.9.2, the South Texas Project submits the attached Special Report regarding the August 23, 1995, valid failure of Standby Diesel Generator #12.

If you should have any questions on this matter, please contact Mr. S. M. Head (512) 972-7136 or me at (512) 972-7239.



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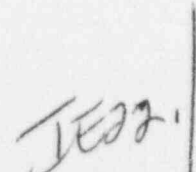
Attachment: Special Report Regarding Standby Diesel Generator #12 Valid Failure

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Project Manager on Behalf of the Participants in the South Texas Project

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South Texas Project Electric Generating Station

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South Texas Project Electric Generating Station  
Unit 1  
Docket No. STN 50-498  
Special Report Regarding a Valid Failure of  
Standby Diesel Generator #12 on August 23, 1995

DESCRIPTION OF EVENT:

On August 23, 1995, Unit 1 was in Mode 1, at 100% power. During the performance of an operability test, Standby Diesel Generator #12 failed to obtain normal voltage and frequency during an emergency-mode start. The engine came up to rated speed, however, there was no indication of generator output voltage.

The electro-magnetic K1 device is normally latched in the standby state and requires an operate signal to actuate the reset coil, unlatching the K1 to allow for voltage regulator operation. A lack of this signal, or failure of the reset coil to function will result in the K1 not changing state.

With the engine running, a visual inspection revealed that the K1 relay was still in the latched condition. During this inspection, the system engineer tapped on the K1 relay and the attached reset coil case. Shortly after, the generator developed normal output voltage and the K1 was noted to have changed state. The engine was subsequently secured and removed from service. The diesel start attempt was classified as a valid failure, and Standby Diesel Generator #12 was declared inoperable.

The K1 relay was replaced and further circuit functional testing was performed with field flash power disabled. Total circuit function was verified through repeated cycles. Following restoration, the diesel satisfactorily completed a post-maintenance test and subsequent surveillance.

Inspection of the malfunctioning K1 relay revealed pitting and signs of arcing on the reset coil contacts. The contacts appeared to be misaligned as evidenced by the visual point of contact being on the extreme edges of the contact material and the free side-to-side movement of the movable contact. The mechanical action and auxiliary contacts of the relay were checked with no abnormalities noted. Other components and connections of the field circuit were checked with no significant anomalies. The relay was reassembled, and electrically cycled several times on the bench with no malfunctions. The appearance and misalignment of the contacts, and the operation of the device after tapping on the case strongly indicate an intermittent failure of the K1 relay.

CAUSE OF EVENT:

The cause of this event is attributed to the misalignment of the reset coil contacts resulting in an intermittent failure of the K1 relay.

ANALYSIS OF EVENT:

Failure of the K1 relay to operate during the diesel start attempt from emergency-mode resulted in the inability of Standby Diesel Generator #12 to generate output voltage. Standby Diesel Generator #12 was not capable of performing its design function, and as such, Standby Diesel Generator #12 was inoperable. This failure to meet the requirements of Technical Specifications resulted in the start attempt being classified as a Valid Failure.

CORRECTIVE ACTIONS:

1. The K1 relay in Standby Diesel Generator #12 was replaced.
2. The investigation will be finalized addressing the root cause of Standby Diesel Generator #12 Valid Failure.
3. Additional corrective actions, including a vendor developed upgrade of the K1 relay will be evaluated as part of the root cause analysis.

ADDITIONAL INFORMATION:

There have been two valid failures in the last 20 valid tests of Standby Diesel Generator #12. The number of valid failures in the last 100 valid tests is four. Standby Diesel Generator #12 is on increased testing frequency as required by Technical Specifications.