

The Light company

Houston Lighting & Power

South Texas Project Electric Generating Station P. O. Box 989 Wadsworth, Texas 77483

November 12, 1992

ST-HL-AE-4258

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

South Texas Project

Unit 1

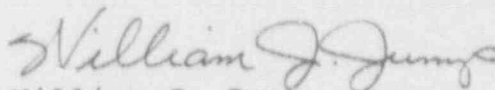
Docket No. STN 50-498

Special Report Regarding A Non-Valid

Failure of Standby Diesel Generator #12 on October 16, 1992

Pursuant to the South Texas Project (STP) Technical Specifications 4.8.1.1.3 and 6.9.2, Houston Lighting & Power (HL&P) submits the attached Special Report regarding a Standby Diesel Generator #12 non-valid failure which occurred on October 16, 1992.

If you should have any questions on this matter, please contact Mr. C. A. Ayala at (512) 972-8628 or me at (512) 972-7205.



William J. Jump
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MKJ/sr

Attachment: 1. Special Report Regarding A Non-Valid Failure of SDG
#12 on October 16, 1992

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Houston Lighting & Power Company
South Texas Project Electric Generating Station

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South Texas Project
Unit 1
Docket No. STN 50-498
Special Report Regarding A Non-Valid
Failure of Standby Diesel Generator #12 on October 16, 1992

DESCRIPTION OF EVENT:

On October 7, 1992 at 0057 hours, Standby Diesel Generator (SDG) #12 had been started for a five hour maintenance run. The SDG was loaded incrementally to 100 percent. The SDG tripped at 0456 hours on a turbocharger thrust bearing failure. The actual thrust clearance was verified and found to be acceptable. However, during troubleshooting the eutectic was found to be tripped and was subsequently replaced in accordance with procedural guidance.

On October 16, 1992, Unit 1 was in no mode during a refueling outage. SDG #12 was started in the emergency mode at 0156 hours and loaded to perform the surveillance procedure for the 24 hour load test. After being released from the emergency mode SDG #12 tripped at 0205 hours. The local annunciator indicated a failed turbocharger thrust bearing. The eutectic was again identified as a problem. The instructions for setting the eutectic were modified to add a tolerance to the clearance by 1/8 turn with the on-site Cooper-Bessemer representative concurrence. The eutectic was then replaced utilizing the modified clearance. This event was classified as a non-valid failure.

The turbo thrust bearing failure trip is actuated by a eutectic installed in the turbocharger air inlet end bearing cap. If the turbo thrust bearing clearance is excessive, then the impeller nut will induce friction on the end of the eutectic, heating and melting the alloy. The melting alloy allows control air to be dumped from the safety trip valve, tripping the engine thus providing protection for the turbocharger.

On October 17, 1992, at 0420 hours SDG #12 was started in the non-emergency mode to verify proper function prior to the 24 hour run. The SDG was taken to 110 percent full load for a load test on the turbo thrust bearing trip. At 0642 hours SDG #12 was placed in the cooldown cycle. Approximately two minutes into the cooldown cycle, the SDG tripped on turbo thrust bearing failure. The off-site Cooper-Bessemer factory expert was contacted and he denied a request for any further increase in the eutectic setting. In order to assure resolution of the ongoing problems with the turbocharger thrust bearing and to allow continued progress on the SDG work, a management decision was made to replace the turbocharger. The turbocharger has been sent off-site for a failure analysis.

CAUSE OF EVENT:

The cause of the trips that occurred on October 7, 1992 and October 16, 1992, is suspected to be due to improper installation of the new eutectic or degradation in the turbocharger allowing the rotor to actuate the trip per design. The October 17, 1992, trip may be due to a defective eutectic. Inspection of the eutectic indicated a small pinhole leak. Since there is minimal thrust on the turbocharger rotor during the cooldown cycle and the leak was so small, a defective eutectic was suspected. Further failure analysis of the turbocharger will be conducted to determine if a degradation of the turbocharger contributed to this event.

ANALYSIS OF EVENT:

This incident is classified as a non-valid failure since the SDG operated satisfactorily in the emergency mode and if challenged would have performed its safety function. The turbo thrust bearing failure trip is bypassed in the emergency mode.

CORRECTIVE ACTIONS:

1. The vendor manual, appropriate drawings and procedures will be revised to reflect tolerances associated with setting the eutectic clearance. Copper-Bessemer has agreed to allow increased tolerances for the eutectic setting. This will be completed by December 15, 1992.
2. Following the third trip on October 17, the turbocharger was replaced. A failure analysis will be conducted on the turbocharger and will be completed by January 28, 1993.

ADDITIONAL INFORMATION:

Per STPEGS Technical Specification 4.8.1.1, there has been 1 valid failure in the last 20 valid tests of SDG 12. The number of valid failures within the last 100 valid tests is less than or equal to 4. Therefore, the testing frequency for SDG 12 remains at once per 31 days.