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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 Two
Nonvalid Failures of #13 Standby Diesel Generator

Pursuant to the South Texas Project Electric Generating Station Technical Specifications 4.8.1.1.3 and 6.9.2, Houston Lighting & Power submits the attached Special Report regarding two nonvalid failures of the #13 Standby Diesel Generator.

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

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GEV/RSS/nl

Attachment: Special Report Regarding Two
Nonvalid Failures of #13 Standby
Diesel Generator

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South Texas Project Electric Generating Station
Unit 1
Docket No. STN 50-498
Special Report Regarding Two
Nonvalid Failures of #13 Standby Diesel Generator

DESCRIPTION OF EVENT:

A nonvalid failure occurred on Standby Diesel Generator (SDG) #13 on August 13, and again on August 26, 1988.

At approximately 0332 hours on August 13, 1988, with Unit 1 in Mode 3 (Hot Standby) and Standby Diesel Generator (SDG) #12 out of service for repair of a leaking fuel nozzle, SDG #13 was started to meet the requirements of Technical Specification Action statement 3.8.1.1.b. SDG #13 started and attained required voltage and frequency (4160 volts and 60 Hz) within ten seconds as required. Approximately one minute later the SDG was placed in the test mode by actuating the "Release Emergency Mode Operation" pushbutton, and the SDG tripped. Control panel indication showed that the trip was due to a jacket water high temperature shutdown signal which has a trip setpoint of 205 degrees F. Immediate investigation by the diesel operator showed the actual jacket water temperature to be approximately 130 degrees F, normal temperature at that point in the operation. Furthermore, the jacket water temperature off-normal alarm, set at 190 degrees F increasing, had not actuated. Due to these observations, it was concluded that the high temperature trip signal was most likely due to a spurious failure of an air-operated pressure switch (Jacket Water High Temperature Shutdown Switch) to reset when the SDG was started. The high temperature alarm cleared shortly afterward, and SDG #13 was restarted at 0338 hours. The high temperature alarm did not actuate; SDG# 13 operated as required and was shut down at 0342 hours after the Technical Specification Action statement was satisfied. A Station Problem Report was generated to investigate the failure.

At approximately 1738 hours on August 26, 1988, SDG #13 started in response to a Safety Injection (SI) signal associated with a reactor trip. The reactor trip and SI event are being reported separately as LER 88-049. At 1757 hours, when the diesel operator actuated the "Release Emergency Mode Operation" pushbutton in preparation for shutting down the diesel, the SDG tripped. As in the August 13 event, control panel indication showed a jacket water high temperature shutdown signal was present, with no other indication of an actual jacket water high temperature condition. With the exception of the start signal to the SDG, the two events appear to be identical.

CAUSE OF OCCURRENCE:

These nonvalid failures are attributed to spurious failure of the Jacket Water High Temperature Shutdown Switch to reset when SDG #13 was started. This was determined to have been caused by setpoint drift. When the SDG was released from the emergency mode, the jacket water high temperature shutdown signal caused an automatic shutdown of the diesel.

ANALYSIS OF EVENT:

SDG jacket water temperature is monitored by a temperature valve. When the jacket water temperature reaches the setpoint of 205 degrees F, a soft metal component in the valve melts, allowing a plunger to drop, and air is vented from the top of the valve. This relieves the air pressure to the Jacket Water High Temperature Shutdown Switch which, in turn, effects a shutdown of the diesel. This pressure switch is normally in the tripped state when the SDG is not running and resets when it is started. If a jacket water high temperature condition had actually existed, the pressure switch could not have reset without replacement of the temperature valve. Due to the fact that the trip cleared, the jacket water temperature was observed to be well below the trip point, and the off-normal alarm did not actuate, it was determined that both trips were caused by a failure of the pressure switch to reset when SDG #13 was started.

The jacket water high temperature signal provides protection for the SDG during testing. It is bypassed when the SDG is operating in the emergency mode. In accordance with section C.2.e.(2) of Regulatory Guide 1.108, these events are classified as nonvalid failures of SDG #13 because they are attributed to spurious operation of a trip that is bypassed in the emergency operating mode.

CORRECTIVE ACTION:

The trip and reset setpoints for the Jacket Water High Temperature Shutdown Switch were recalibrated, and the SDG was tested successfully.

ADDITIONAL INFORMATION:

There have been twenty-one (21) valid tests performed on SDG #13 since completion of the 100-hour run test on August 6, 1987. There have been no valid failures to date. The test interval for SDG #13 remains at 31 days.

There was one previous nonvalid failure of SDG #13 on March 16, 1988, but the cause of that event was unrelated to the most recent occurrences.

The Jacket Water High Temperature Shutdown Switch is a DeLaval Parkdale model CD-2S-M18S9-S1 pressure switch.