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SUBJECT: Special rept:on 920630,DG 1A declared out of svc in order to perform preventative maint on air start sys.Caused by spurious operation of trip which is bypassed in emergency operating mode.Temp switches repaired & reinstalled.

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FPL

July 27, 1992

L-92-217
10 CFR 50.36

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Re: St. Lucie Unit 1
Docket No. 50-335
Special Report
Date of Event: June 30, 1992
Emergency Diesel Generator Failure

The attached Special Report is being submitted pursuant to the requirements of St. Lucie Technical Specifications. This report provides notification of one non-valid failure of the 1A Diesel Generator.

Should there be any question on this information, please contact us.

Very truly yours,

D. A. Sager
Vice President
St. Lucie Plant

DAS/JWH/kw

Attachment

cc: Stewart D. Ebneter, Regional Administrator, USNRC Region II
Senior Resident Inspector, USNRC, St. Lucie Plant

DAS/PSL #742-92

IE22
1/1

NRC SPECIAL REPORT
DIESEL GENERATOR NON-VALID FAILURE

Description of Non-Valid Failure: On June 30, 1992 at 2315, the 1A Diesel Generator was declared out of service in order to perform preventative maintenance on the air start system. Following successful completion of preventative maintenance, the Diesel Generator was started at 1118 on July 01, 1992. However, the Diesel tripped at 1200 due to high water jacket temperature. The Diesel Generator High Water Jacket Temperature Switches, TS-59-002A (1A1 Engine/16 Cylinder) and TS-59-003A (1A2 Engine/12 cylinder) are set at 205 Deg F. Local indication of water jacket temperature however, peaked at 180 Deg F. At 1208, a local start was performed for troubleshooting purposes, but the Diesel tripped immediately on high water jacket temperature. It was determined by local observation of the trip relay flags that the diesel was tripped in both cases by TS-59-002A.

The Diesel Generator High Water Jacket Temperature switches were both removed to verify their trip setpoints. It was discovered during inspection that a mounting screw within TS-59-002A had come loose and was subsequently replaced. Both switches were verified to have the correct trip setpoint of 205 Deg F and were then reinstalled. The 1A Diesel Generator was restarted locally at 2136 and loaded to 3400 KW for a one hour surveillance run.

This surveillance run was successfully completed at 2315. However, there was still reasonable doubt that the Diesel Generator failure was due to the loose relay mounting screws on TS-59-002A. Thus, the Diesel Generator remained out of service to perform meggering of the trip wiring in order to preclude the existence of any electrical grounds or faults. All wiring was verified free of grounds and the 1A Diesel was restarted at 1733 on July 02 . However, at 1821 the Diesel again tripped on high water jacket temperature. The operator on the scene verified local water jacket temperature to be 183 Deg F, well below the required setpoint. This trip, however, was attributed to TS-59-003A.

At this point, both TS-59-002A and TS-59-003A were removed for inspection. No observable damage was noted in TS-59-002A, however a new switch was calibrated/installed. Upon disassembly of TS-59-003A, the setpoint spring nut was found to be loose. TS-59-003A was subsequently repaired and the setpoint spring nut was reattached. The 1A Diesel Generator was restarted on July 03 at 0243 and successfully completed a two hour surveillance run. The 1A Diesel Generator was declared back in service at 0445 on July 03. The 1A Diesel Generator was unavailable for approximately 53 1/2 hours.

Failure Analysis: This problem was evaluated to be a non-valid failure per Regulatory Guide 1.108 C.2.e.2 because the high water jacket temperature shutdown is overridden during the presence of a Safety Injection Actuation Signal and an undervoltage condition on the safety-related 4.16 KV AC buses. Additionally, actual water jacket temperature never exceeded 183 Deg F. Thus, the unsuccessful runs were attributed to spurious operation of a trip that is bypassed in the emergency operating mode. The last valid failure of the 1A Diesel Generator occurred on July 05, 1991. That was the 1st valid failure in the last 20 starts.

Corrective Actions: 1) TS-59-002A was repaired, recalibrated, and reinstalled. 2) TS-59-003A was replaced with a new switch. 3) The remaining temperature switches on the 1B, 2A and 2B Diesel Generators were determined to be of a different model type than what had failed on the 1A Diesel Generator. 4) This was determined to be the first failure of this model of temperature switch at St. Lucie Plant.