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SUBJECT: Special rept: on 890117 & 0203, emergency diesel generators
 2A & 2B failed.

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MARCH 20 1989

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

Gentlemen:

Re: St. Lucie Unit 2
Docket No. 50-389
Date of Event: January 17, 1989 and February 3, 1989
Special Report on Diesel Generator Failures

The attached Special Report is being transmitted pursuant to the requirements of Technical Specification 4.8.1.1.3 to provide notification of 2A and 2B Emergency Diesel Generator failures.

Very truly yours,


W. F. Conway
Senior Vice President - Nuclear

WFC/JRH/cm

Attachment

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

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SPECIAL REPORT

DIESEL GENERATOR FAILURES

2B DIESEL GENERATOR FAILURE:

In accordance with NRC Regulatory Guide 1.108, Section C.2.e, this event is considered a non-valid diesel generator failure since it was caused by a "malfunction of equipment that is not operative in the emergency operating mode". As per Unit 2 Technical Specification 4.8.1.1.3, the event is being submitted as a Special Report.

At 0600 on January 17, 1989, the 2B diesel was taken out of service for routine maintenance. In order to repack the soakback oil pumps, the soakback oil system and standby immersion oil heaters were taken out of service. At midnight on January 17, the soakback oil system was placed back in service. In accordance with the engine manual, the engine oil was verified to be above 85°F after about one hour of soakback system operation. The engine was fast started from the control room for a post-maintenance surveillance run at 0158 on January 17, but tripped almost immediately on high crankcase pressure on the 2B2 (12 CYL) engine. Following the trip, the crankcase pressure trip device on 2B2 diesel was found tripped and was successfully reset. The lube oil was then heated and the engine was fast started again. Another post-maintenance surveillance run was performed with satisfactory results. The 2B diesel was then returned to standby service.

The cause of the diesel trip was in the engine design. Under certain conditions (i.e., fast starts and/or lower lube oil temperatures), the lube oil relief valve will relieve lube oil in close proximity to the crankcase pressure detector, causing a crankcase overpressure trip. The high crankcase pressure trip is not operative when the diesel generator is in the emergency operating mode, therefore, this is considered a non-valid failure.

Planned corrective action is to install oil splash guards on all St. Lucie plant diesels, as was already done on the 2A diesel. Also, since the Technical Specification as revised by Amendment No. 39 now allow idle starts, procedure changes are being prepared in order to perform idle diesel engine starts when the soakback oil system has been out of service for extended periods.

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2A DIESEL GENERATOR FAILURE:

In accordance with NRC Regulatory Guide 1.108, Section C.2.e, this event is considered a non-valid diesel generator failure, since the failure was not attributable to the defined diesel generator unit design. As per Unit 2 Technical Specification 4.8.1.1.3, this event is being submitted as a Special Report.

At 1707 on February 3, 1989, a loss of off-site power was simulated in conjunction with the testing of engineered safety features on Unit 2. This condition requires the diesel generators to auto start and energize their respective safety-related loads.

With the loss of off-site power, the 2A and 2B diesels started and sequenced loads as designed. However, the strip chart recorder which was being used locally in the diesel generator building to monitor the diesel generator's voltage and frequency was discovered by Electrical Maintenance personnel to be indicating 0 volts and 0 hertz frequency. It was discovered that two test leads from the D/G voltmeter to the chart recorder transducer devices were disconnected. While re-landing these leads, a spark was observed. The voltage regulatory/speed control potential transformer circuit were shorted, and a fuse was blown. The 2A diesel generator voltage control went high and the governor control went to about 58HZ. The event was terminated by manually tripping the 2A diesel generator locally, using the overspeed trip lever.

The two leads that had been disconnected from the chart recorder were required, by procedure, to be connected prior to the start of the test. The disconnected leads were not discovered until after the diesel start, primarily because the proper personnel were not on station in the diesel generator building when the test began. Since personnel error was determined to be the cause of the event, this is considered a non-valid failure. Once the diesel generator was tripped, an inspection of the 2A diesel and "A" train equipment was performed to verify operability. A surveillance run was performed on the diesel generator with satisfactory results. The 2A diesel was then returned to standby service.

The major cause of the event was that all necessary personnel were not stationed prior to the test. Planned corrective action is to add a step in the engineered safety features test procedure that verifies all test personnel are stationed prior to the test.

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