LERs 389/83-037 and -039

Event Description: Trip with Emergency Diesel B and AFW Pump C Inoperable

Date of Event: July 28, 1983

Plant: St. Lucie 2

Summary

On July 28, 1983, with the unit at 0% power, diesel 2B failed to load onto its 4,160-V bus during a loss of offsite (LOOP) power test. The cause of the failure was traced to a broken electrical lug, which prevented the output breaker in the diesel generator circuit from closing. The 2A diesel started and loaded normally. Both offsite power sources were available. The 2B diesel was returned to service within five hours. This event was reported in licensee event report (LER) 389/83-037. On the same date, after the LOOP test, the 2C auxiliary feedwater (AFW) turbine-driven pump tripped three times during attempts to start it manually. No cause for the pump failure to start could be determined and it was returned to service. The unit tripped twice on July 26, 1983, two days prior to the diesel generator and AFW pump failures, as well as on July 28.

This event was modeled as a trip on July 28 with one diesel generator and the turbine-driven AFW pump unavailable. These same equipment unavailabilities may have existed during the trips that occurred on July 26. The conditional core damage probability estimated for this event is 3.7×10^{-6}. The dominant core damage sequence consists of a transient, successful reactor trip, failure of AFW, failure of main feed water, and failure of feed and bleed.