

## **LER 335/82-062**

Event Description: Inadvertent Safety Injection and Loss of Vital Power Supplies

Date of Event: November 26, 1982

Plant: St. Lucie 1

### **Summary**

On November 26, 1982 during full-power operation, safety injection actuation signals (SIAS) for channels A and B of the emergency safety features actuation system (ESFAS) were actuated because a trip test switch was incorrectly positioned by maintenance personnel performing a monthly preventive maintenance test. All appropriate automatic actions occurred; however, the static uninterruptible power supply (SUPS) was lost due to an incorrectly set time delay for the 480-V emergency bus under-voltage relay. The reactor was manually tripped. The diesel generators (DGs) automatically loaded to provide ac power to the plant vital loads. Vital power and normal plant status were restored in approximately 45 minutes.

The event was modeled using three different scenarios. In the baseline case it was assumed that both diesels operated as they did during the actual event. In the second case it was assumed that one diesel failed to start or was unavailable, i.e., only one train of emergency power (EP) was available. Finally, the case of both diesels failing (both trains of EP) was considered. For the second two cases, the appropriate numbers of trains of auxiliary feedwater (AFW), feed and bleed, residual heat removal (RHR), containment spray recirculation (CSR), and high-pressure recirculation (HPR) were made unavailable; in the event tree branches. The conditional core damage probabilities (CCDPs) were then calculated for each case using a transient as the potential initiator. The results of the three cases were then weighted by multiplying the CCDP by the probability of the corresponding number of failed diesels. Summing these values provided a final weighted average of  $5.6 \times 10^{-6}$ . Based on the weighted probabilities, the dominant accident sequence consisted of a successful reactor trip, loss of AFW, loss of main feedwater, and failure of feed and bleed.