LER 339/82-061

Event Description: Transient with One Low-Pressure Safety Injection Pump Inoperable

Date of Event: September 5, 1982

Plant: North Anna 2

Summary

On September 5, 1982 during normal operation, the containment sump suction valve of low-pressure safety injection (LPSI) pump 1A failed to open during a periodic surveillance test. The valve hand wheel, which is connected to the valve with a flexible extension from the first level of the safeguards area to the bottom of the valve pit, could not be moved. Investigation revealed that the flexible extension had been wrapped with a power cord by maintenance personnel, which prevented the extension's rotation. A plant trip occurred on August 22, 1982, 14 days prior to the discovery of the valve fault (NUREG-0020).

This event was modeled as a transient with one LPSI pump residual heat removal (RHR train) assumed to be failed. Since high-pressure recirculation (HPR) relies on these pumps as well, one train of HPR was also set to failed. The estimated conditional core damage probability for this event is 1.1×10^{-6}. The dominant sequence was not affected by the branch probability modifications. The dominant sequence involved the failure of auxiliary feedwater, main feed water, and feed and bleed.