

LER 321/82-088

Event Description: HPCI and RCIC Unavailable

Date of Event: September 24, 1982

Plant: Hatch 1

Summary

On September 24, 1982, the high-pressure coolant injection (HPCI) inboard discharge valve's motor operator failed due to a failure of the de motor windings. At the time, the reactor core isolation cooling (RCIC) system was unavailable due to maintenance. Since both RCIC and HPCI were unavailable, a reactor shutdown was initiated. The plant was not shut down since the RCIC system was returned to service and was demonstrated operable within the required 24-hour time period. HPCI is assumed to have failed 15 days prior to the discovery of the failed valve operator (half a test interval). It is not known how long RCIC was unavailable due to maintenance; however, the limited condition of operation (LCO) time associated with an unavailability of RCIC is 14 days. RCIC is assumed to have been unavailable for half of its allowable LCO time, seven days.

Therefore, this event was modeled as a loss of RCIC and HPCI for seven days (168 hours). RCIC was assumed to have been non-recoverable, and a non-recovery probability of 1.0 was assigned to it. A non-recovery value of 0.55 was used for the HPCI system, since the valve could have been manually operated locally, in accordance with the approach outlined in the *Methods Incorporated into the SAPHIRE ASP Models* paper published in NUREG/CP-OI40, *Proceedings of the USNRC Twenty-Second Water Reactor Safety Information Meeting*. The increase in core damage probability (CDP), or importance, over the duration of the event is 2.5×10^{-6} . The base-case CDP over the duration of the event is 1.3×10^{-6} , resulting in an estimated conditional core damage probability of 3.8×10^{-6} . The dominant core damage sequence involves a postulated loss of offsite power, a failure of the emergency diesel generators, a failure of HPCI, and a failure of RCIC.