LERs 321/82-011, -012

Event Description: Trip with RCIC Unavailable

Date of Event: February 12, 1982

Plant: Hatch 1

Summary

On February 11, 1982, during testing of the high-pressure coolant injection (HPCI) system, the HPCI auxiliary oil pump failed to perform as required. The oil pump rapidly cycled on and off approximately five times before sealing in and running normally. On February 12, 1982, a reactor scram occurred and the reactor core isolation cooling (RCIC) system was manually initiated to maintain reactor vessel level. Following RCIC initiation, plant personnel discovered that smoke was coming from the RCIC space and the RCIC system was declared inoperable.

The cause of the HPCI auxiliary oil pump cycling was not positively identified. Upon investigation, the condition could not be reproduced and therefore the identification of the exact component causing the problem was not possible. The two components deemed most probably the cause of the failure were replaced to prevent recurrence. The smoke coming from the RCIC space was found to be caused by a 4-ozlhour oil leak in the RCIC lubrication system leaking onto the hot turbine casing.

Although the HPCI pump had some trouble initially starting, it eventually ran satisfactorily. Therefore, for the purposes of this evaluation, HPCI was assumed to be available. This event was modeled as a reactor trip. It was assumed that RCIC would fail without adequate bearing lubrication, so RCIC was assumed to be failed and not recoverable in the model. The estimated conditional core damage probability is 3.3×10^{-6}. The dominant sequence involves the observed transient, failure of the power conversion system, main feedwater system success, and failure of the residual heat removal system. This event was also evaluated assuming that the feedwater and power conversion systems were inoperable, since their actual status during the event is unknown. Assuming main feedwater (MFW) and power conversion system (PCS) are initially unavailable, the conditional core damage probability estimated for this event would be 1.5×10^{-5}.