

3. Equipment Performance

The following paragraphs summarize the AIT's conclusions regarding the performance of specific systems or pieces of equipment during the event. By the CAL, the licensee was also requested to address equipment performance and that assessment is included in Attachment 5.

(a) Recirculation Pumps and Flow Control Valves

A trip of both RR pumps is a designed feature of the LaSalle plant in order to cause a power reduction in the event of an ATWS, as indicated by a loss of reactor level without an associated scram. The pressure pulse on the reference leg of the ATWS switches appeared to be sufficient to provide this indication and consequently the trip of both pumps occurred as would be expected.

During the RR pump trip recovery, the operators attempted to restart the RR pumps and were unsuccessful. At the time of the exit, the RR pump start failure was believed to be due to the failure to satisfy one of the pump start interlocks. Exactly which interlock was not satisfied was not conclusively determined, however, likely candidates include the recirculation flow control valve not fully in minimum position and the hi speed start permissive (depends on feedwater flow). The operators have no indication available in the control room to determine which RR pump start interlocks are satisfied, however, following the scram, a successful start of the RR pumps was conducted with no abnormalities. The AIT does not believe that the RR pump start failure was indicative of equipment failure but more likely was a failure to satisfy the interlocks compounded by the confusion of the number of things happening at once in the control room. The AIT believes the licensee investigative efforts in this regard were appropriate. Additionally, one of the first problems noted after the transient started was the lock up of the RR pump flow control valves (FCV). Once the operators recognized that the RR pumps had tripped, they responded by trying to ramp the FCV back to minimum position in preparation for RR pump restart. Both FCVs locked up prior to reaching their minimum position. This hindered RR pump restart later. An equipment operator was sent into the plant to reset the FCV lockouts. The Unit 2 NSO was then able to get the A FCV back to minimum position. The B FCV was not reset because there was an abnormal signal alarm which would have required additional operator actions. FCV lockout was not fully investigated by the AIT.