NRR-PMDAPEm Resource

From: Wiebe, Joel
Sent: Friday, May 03, 2013 5:10 PM
To: 'Timothy Byam'; 'Leslie.Holden@exeloncorp.com'
Subject: Preliminary Braidwood/Byron MUR RAIs from SRXB

Tim/Leslie,

Consider these as very preliminary RAIs. As you know the Reactor Systems Branch (SRXB) is still working on their initial SE input. They have identified some questions regarding PORV performance and qualification during a Safety Injection that fills the pressurizer and an inadvertent PORV opening. I have not researched these myself, as I normally would, because I am technically on vacation until 5/13. However, I wanted to get these to you before I left the area.

We can discuss them when I get back.

1. UFSAR Page 15.5-3 indicates that the pressurizer fills and the safety relief valve system discharges water.
   a. Describe the safety relief valves? Are they PORVs or spring-loaded safety valves?
   b. At the MUR power level, show that the inadvertent operation of the ECCS event will not escalate to a Condition III or IV event. Show that the pressurizer will not fill, or else show that the PORVs are protection grade equipment, qualified for use as an accident mitigation system. This means the PORVs and discharge piping are qualified for water relief, the automatic control system circuitry is of 1E quality, and the Tech Specs assure that the PORVs will always be available. The NRC staff approved such a PORV qualification for Salem, in 1997 (ADAMS no. ML011720397). Also see RIS 2005-029, for more guidance.

2. At the MUR power level, show that the inadvertent opening of a pressurizer PORV event will not escalate to a Condition III or IV event. This event is normally analyzed as a RCS depressurization at power. Reducing pressure without reducing power reduces thermal margin. The analysis determines that the DNBR safety limit is not violated. The reactor trip is generated by the overtemperature DT protection logic, which is intended for DNB protection. This usually doesn't take more than a minute. If the analysis is allowed to proceed past the time of overtemperature DT trip, then the continuing depressurization reaches the low-low pressurizer pressure SI setpoint, which is a legitimate SI signal. As the RCS pressure drops, the ECCS delivers more SI flow, and fills the pressurizer, in about five minutes, and discharges water through the open PORV. Water discharge through the PORV could prevent the PORV from reseating, even when valve closure is demanded by the operator. This scenario was considered for the St. Lucie and Turkey Point EPUs.

Joel

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