

WPPSS NUCLEAR PROJECT NO.2
REPORTABLE DEFICIENCY AND CORRECTIVE ACTION
FOR CONDENSATE IMPINGEMENT ON RCIC TURBINE

WASHINGTON PUBLIC POWER SUPPLY SYSTEM
DOCKET NO. 50-397
LICENSE NO. CPPR-93

DESCRIPTION OF THE DEFICIENCY

The four-inch steam supply piping to the Reactor Core Isolation Cooling turbine comes off the top of the 10" steam supply header, rather than the bottom. Therefore, condensate collecting in the 10" line has no way to drain to the drain trap at the low point of the four-inch line. The condensate could form a water slug during RCIC turbine operation and damage the turbine or the steam supply piping.

SAFETY IMPLICATIONS

For all transients in which vessel level drops, initial core cooling is provided by either RCIC or HPCS (High Pressure Core Spray). However, if RCIC is lost during an isolation transient due to this design deficiency and the single active component failure is HPCS, initial core cooling is no longer available. The operator would have to manually initiate the automatic depressurization system so that the low pressure core cooling systems can inject into the reactor. However, this scenario has not been evaluated in Chapter 15, so there is no proof that the consequences are acceptable.

In addition, the water slug could damage the steam supply piping, which is part of the containment boundary. Loss of this piping just outside of the containment boundary plus the required single failure assumption of the inboard isolation valve could provide a direct path from the reactor coolant pressure boundary to secondary containment.

CORRECTIVE ACTION BEING TAKEN

A one-inch drain line is being added to the bottom of the 10" steam supply header to continuously drain the 10" header to the four-inch steam line to the RCIC turbine. The condensate will be drained by the drain trap at the low point of the four-inch line. A Project Engineering Directive has already been issued (PED-215-M-2339) to add the one inch drain line.