Issue 28: Pressurized Thermal Shock

DESCRIPTION

Pressurized water reactors are susceptible to certain types of hypothetical accidents that, under circumstances such as operation of the reactor beyond a critical time in its life, could result in failure of the pressure vessel

as a result of extensive propagation of crack-like defects in the vessel wall. Accidents of particular concern are those that result in rapid cooling (thermal shock) of the inner surface of the reactor vessel wall, particularly if they also involve substantial primary system pressure. Such accidents have been also referred to as "overcooling accidents" (excessive cooling for a particular pressure) and/or "pressurized thermal shock." A detail description

of this issue can be found in NUREG/CR-2083.[1]

CONCLUSION

This issue is covered under USI A-49, "Pressurized Thermal Shock."

[1] NUREG/CR-2083, "Evaluation of the Threat to PWR Vessel Integrity Posed by Pressurized Thermal Shock Events," U.S. Nuclear Regulatory Commission, October 7, 1981.