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Structural Integrity Analysis of Baffle Former Assembly in Pressurized Water Reactors Considering Irradiation Aging

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Abstract : BFA is one of the reactor internals components in PWR. The BFA has the intended functions to support fuel assembly, to keep structural integrity of upper/lower core support structures, and to secure reactor coolant flow path. Failure of the BFA may give rise to significant effect on reactor safety operation and stop. The BFA is subject to relatively high neutron irradiation dose due to location close to the core. Therefore, IASCC can occur on the BFA due to damage accumulation as operating year increases. In this study, IASCC susceptibility on the BFA was assessed via the FEA considering variations of mechanical material behaviors with neutron irradiation. As a result of the assessment, some points have susceptibility more than 0.2 to IASCC during design lifetime.

Keywords : baffle former assembly, finite element analysis, irradiation aging, nuclear power plant, pressurized water reactor
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