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Maintenance Strategy for i-SMR

The innovative-SMR (i-SMR) being developed in South Korea has maintenance challenges due to its integral reactor design compared to conventional nuclear power plants. To overcome these limitations, the i-SMR has been designed with maintenance considerations. The maintenance procedure for the i-SMR includes several steps aimed at optimizing maintenance efficiency. The maintenance procedure for the i-SMR comprise the following steps : 1) Containment Vessel upper head disassembly & inspection (CV head is maintained at laydown area), 2) Reactor Closure Head disassembly & maintenance (Remove of CEDM/ICI penetration seal and increasing of level of refueling pool), 3) Reactor Vessel Internals (inner barrel assembly ⟶ upper guide structure ⟶ core support plate), 4) Transfer the fuel assembly to spent fuel pool, 5) Non destructive testing inspection for main component (UT inspection for RV/CV welds). These detailed steps allow the i-SMR to undergo maintenance in less time compared to conventional nuclear power plants. By prioritizing maintenance considerations in its design and implementing efficient maintenance procedure, the i-SMR demonstrates its potential to minimized overhaul time and maximized operational efficiency.

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