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The Initial Test Program Features for the Advanced Korean NPPs (Shin-Kori NPP Units 3 & 4)

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Korea has developed the Advanced Power Reactor 1400 (APR1400), an evolutionary pressurized water reactor and has obtained the standard design approval in 2002. As of 2014, eight nuclear power plants (NPPs) are in preparation for operation or under construction, four in Korea (SKN 3 & 4, SUN 1 & 2) and four in UAE (BNPP 1, 2, 3 & 4), and four NPPs are in planning in Korea (SKN 5 & 6, SUN 3 & 4). Especially, SKN Units 3&4 are the first construction NPPs for the APR1400 and are currently in the final stage to get Operating Licence (OL).

The initial test program for NPPs begins as systems and components are turned over to the startup organization and ends with completion of the Power Ascension Tests (PATs).

For SKN Unit 3, the Pre-core Hot Functional Testing has been successfully completed and the initial fuel loading would proceed after getting OL. The SKN Unit 4 is preparing for the CHT (Cold Hydrostatic Test).

The SKN 3 & 4 has many new and advanced design features and so has developed the test programs to demonstrate that those advanced design features can be safely operated and the performance levels can be maintained in accordance with approved safety requirements. Among those test programs, the examples of test programs, newly introduced ones compared to the previous NPPs are as follows;

- SIT (Safety Injection Tank) Blowdown Test with FD (Fluidic Device)
- IRWST (In-Containment Refueling Water Storage Tank) In-Plant Test
- POSRV (Pilot Operated Safety Relief Valve) Test
- Low Power Physics Testing and PAT considering FOAK (First Of A Kind) unit
- Safe Shutdown Test with DCS (Distributed Control System) Fail and CMF (Common Mode Failure) for Safety Instrumentation and Control System

Country or International Organization

Republic of Korea (WiN-Korea)

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