

Switzerland's KKL Enlists Holtec to Develop a New Dual-Purpose (Storage and Transport) Cask for Leibstadt NPP based on the Proven HI-STAR 180 Design Platform

Under a newly signed contract, Holtec International will develop the BWR version of its extensively tested and validated Type B(U)F cask for PWR fuel, known as HI-STAR 180. HI-STAR 180 is a uniquely capable cask certified to transport spent nuclear fuel containing both uranium oxide and mixed-oxide fuel types for modern fuel cycles [32 kW Heat load/66GWD/MTU burn-up]. Development of the HI-STAR 180 was sponsored by AXPO starting in 2006 for Beznau NPP. It was licensed in 2009 by the USNRC and renewed in 2014 and is under fabrication at Holtec Manufacturing Division (HMD) under a controlled authorization regimen from ENSI (the Swiss regulator). As is well-known, HMD is a pre-eminent manufacturer of nuclear components and systems and holds the entire complement of ASME Boiler & Pressure Vessel Code stamps, as well as the ISO-3834-2 certification (necessary for fabricating the wide variety of nuclear plant weldments supplied by Holtec to many international customers).



*HI-STAR 180 Containment Boundary
in Fabrication*

HI-STAR 180 utilizes the highly conductive neutron absorber called Metamic-HT™, which is Holtec's patented aluminum-based material that maintains a yield strength close to stainless steel at elevated temperatures (300°C/572°F). HI-STAR 180 has been proven to maintain large margins of safety during all regulatory (hypothetical) accident events, even a military aircraft crash simulated at US Army's Aberdeen proving grounds with a kinetic energy equivalent to an engine and fuselage crashing into the cask at over 600 mph (965 kph).

A slightly modified design to accommodate Belgium's Doel 1& 2 Nuclear Plant, fittingly called HI-STAR 180D, was ordered by Belgium's SYNATOM in 2012. The Beznau and Doel Units are "sister plants", along with Mihama Units 1&2 in Japan. HI-STAR 180D was licensed by the USNRC in 2014 and is now undergoing the final stages of the safety reviews by the Belgian regulators (FANC and Bel-V). Thus, KKL's latest order for Leibstadt (a BWR cask to be called HI-STAR 180L), will be the third cask embodiment based on the HI-STAR 180 platform. "Certification of HI-STAR 180L will give KKL a strategic depth in managing its used fuel", says KKL's Dr. Tony Williams.

HI-STAR 180L will be identical to the HI-STAR 180 with respect to both its anatomical details and safety analysis methodologies to facilitate expedited licensing by the USNRC and ENSI. Holtec's Dr. Richard Springman, who led the contract negotiations with KKL, thanked the client for the opportunity to meet their emerging needs "with a technology that is intimately familiar to the Swiss regulatory authorities from their years of exacting licensing review and fabrication qualifications for the HI-STAR 180."

Note: Holtec Highlights is a newsletter of Holtec International distributed to the Company's internal and external stakeholders. Holtec International bears full and undivided responsibility for the accuracy of its contents. - Erika Grandrimo, Publisher