First transport campaign of new type B(U) packaging for hotlabs

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Research labs worldwide investigate radioactive materials that come from and go to nuclear power plants or research reactors. This can be nuclear fuel, irradiated material samples, instrumentation … all materials with different composition, dimension, weight, residual heat, fissile material. The transport of these radioactive materials often requires the use of a type B transport packaging according to the IAEA SSR-6 recommendations. To be able to fulfil this specific transport services, Transnubel has, amongst others, a new package design at its disposal: TNB 170.

Since the beginning of 2018, the new-build packaging TNB 170 has been in operation. This packaging was developed based on the experience gained during over 40 years of nuclear transports. TNB 170, a type B(U) packaging, is designed for the transport of fresh or irradiated UOX/MOX fuel, sealed or unsealed radioactive sources and neutron sources of type Xx-Be. The loading and unloading can be done vertically in or horizontally against a hotcell.

During the first transport of irradiated fuel samples, the loading of the TNB 170 was executed horizontally against a hotcell and the unloading was performed by placing the packaging vertically inside a hotcell. Specific tools and liners were designed and fabricated for executing the loading/unloading and transport operations in a safe way.

There have been a number of challenges that had to be solved regarding the design of the liner, interfaces between loading/unloading facilities, tools, transport frames … to guarantee a safe transport cycle. Meeting these challenges, especially in the environment of hotlabs with limited access and tools, is important for all future transports with the TNB 170.