

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

Robby Vandendries, Amir Hushyar and Wim Boeckx

Transnubel, Dessel, Belgium

Corresponding author: Amir Hushyar <amir.hushyar@transnubel.be>

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.