LLW/ILW management equipment

Employer – JAVYS, a.s.
Consortium - Westinghouse/ VUJE
Subcontractor – Wood Nuclear Slovakia

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LLW/ILW management equipment

Wood Nuclear Slovakia takes part in Project for Dismantling of large components in V1 NPP as Sub-contractor to Westinghouse Electric Spain, part of the Consortium Westinghouse Electric Spain, Westinghouse Electric Sweden and VUJE. The Employer is JAVYS, a.s.

One of the main goals of the Project is dismantling, segmentation and packaging of the Reactor internals, Reactor pressure vessels and other components.

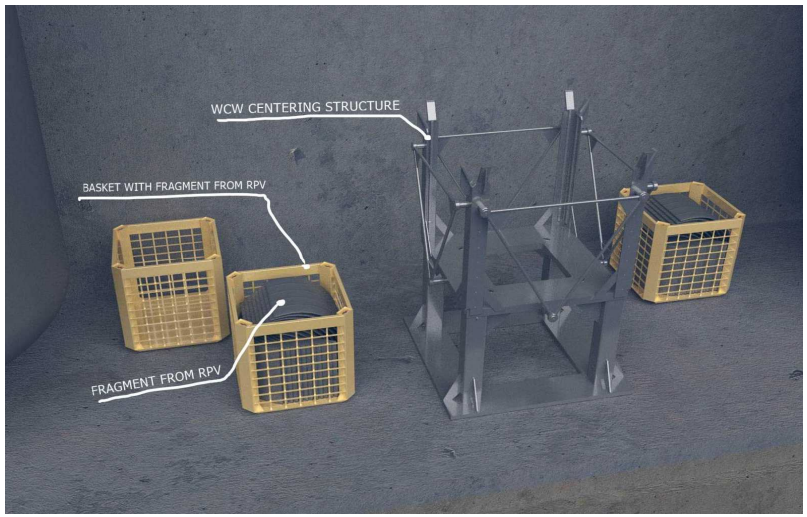
The components will be fragmented mainly in Wet Cutting Workshops. The fragments will be under water characterized and placed into baskets for transportation outside the pool for packaging into dedicated waste packages.

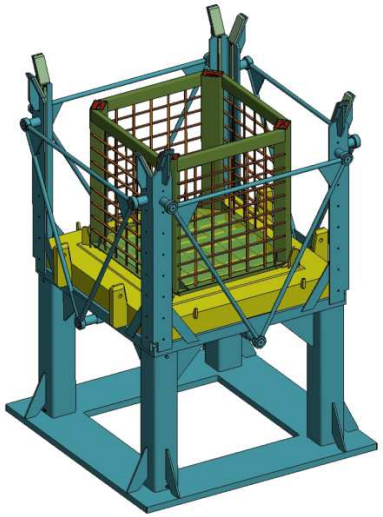
The activities will be performed with a set of equipment which were designed and nowadays are under manufacture.

Centring structure in WCW

The purpose of the use is to center the shielding bell bottom and basket in Wet cutting workshop.

- To lead the shielding bell body and with upper plate on the basket
- To prevent deformation of basket
- Construction for characterization of the basket using the Octopus equipment





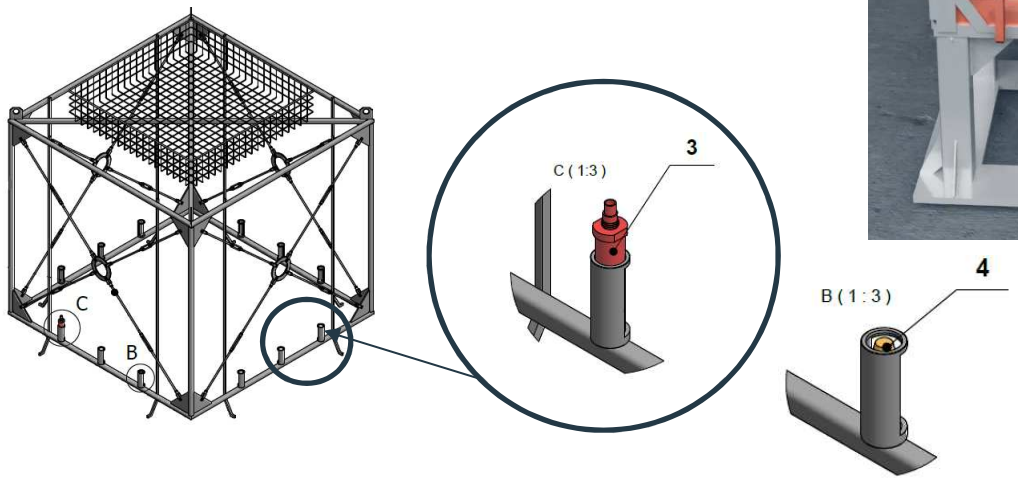
Basket characterization (underwater measurement)

The Octopus is a frame structure which will be used for radiological characterization of the baskets with fragments.

For the characterization two sets of gamma-probes will be used:

- STTC-W for lower activities
- STHF-R for higher activities
- 12 probes - 3 on each side

Basket on top of the frame serves for placing of the cables.



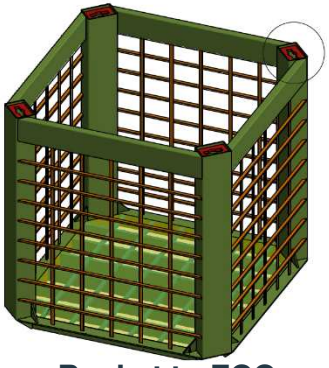
Basket for fragments

Framgents from the cutting, wet or dry fragmentation, will be placed into prepared baskets.

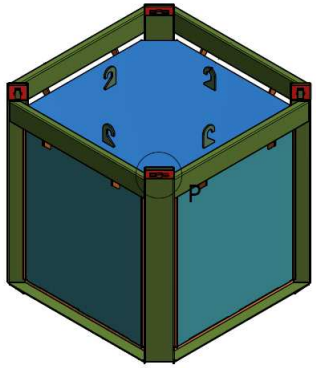
For the requirements of the Project were designed three types of baskets

- Baket to FCC
- Basket for KNI – with internal 2mm lining
- Shielded basket (for RSA, ABS, ST) – internal 20mm shielding

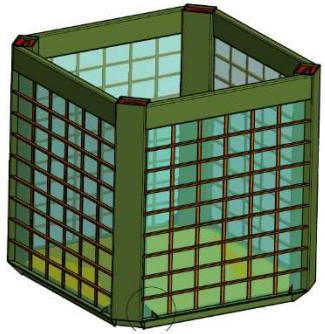
Dimensions of all the baskets are designed for use in Fiber concrete container, with the maximal utilisation of the space.



Basket to FCC



Shielded basket

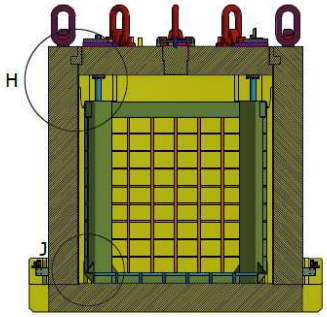


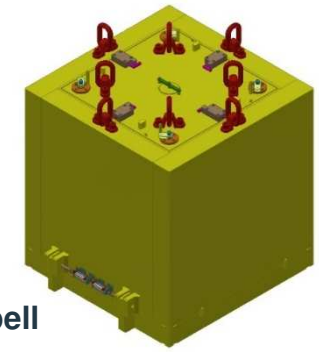
Basket for KNI

Shielding bell

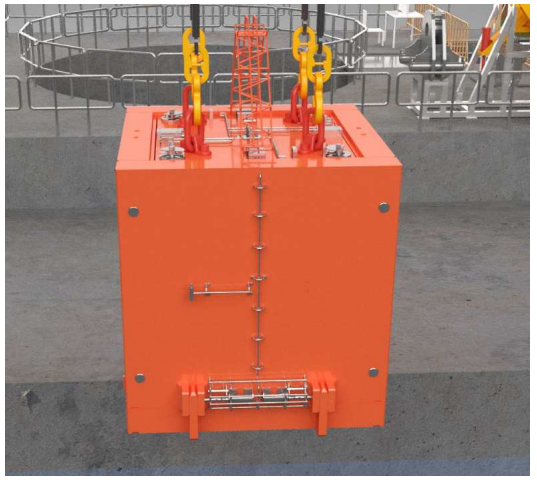
Will be used for transportation of filled baskets from WCW to BTS, and consists of 3 parts:

- Detachable bottom
- Body
- Movable upper plate with basket gripper





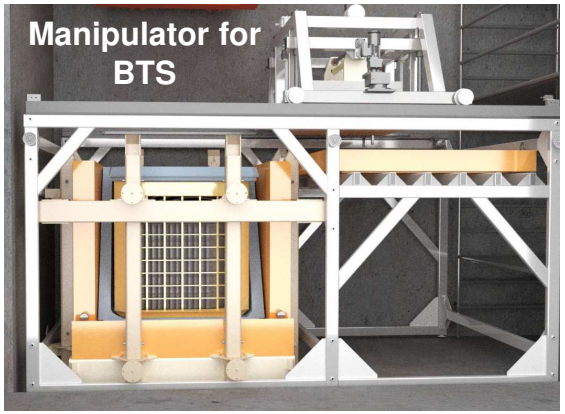
Shielding bell



Basket Transfer Station

After the retrieval of the basket from the WCW using the shielding bell will be the basket transfered to basket transfer station for final packaging of the fragmented material. In the BTS will be installed following equipment:

- Centring structure with adapters,
- Manipulator for BTS (containers and shielding lidding device)
- Control panels, video-surveillance system



BTS Centering structure with adapters

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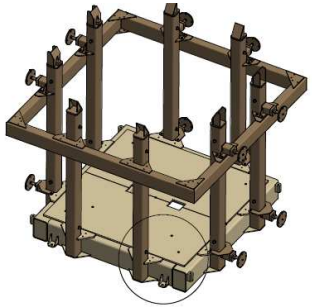
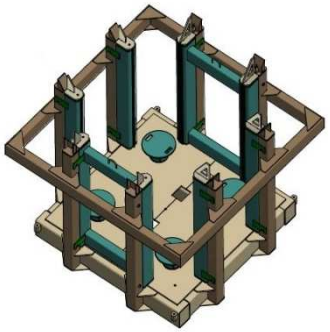
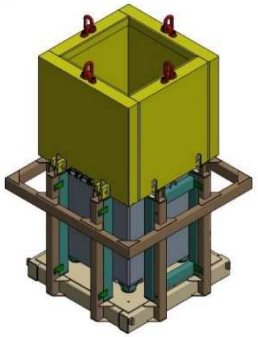
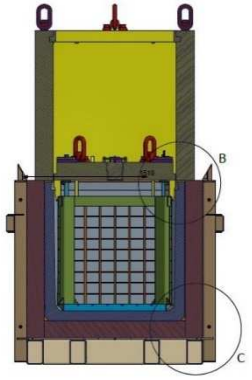


BTS centring structure



BTS centring structure with installed adapters

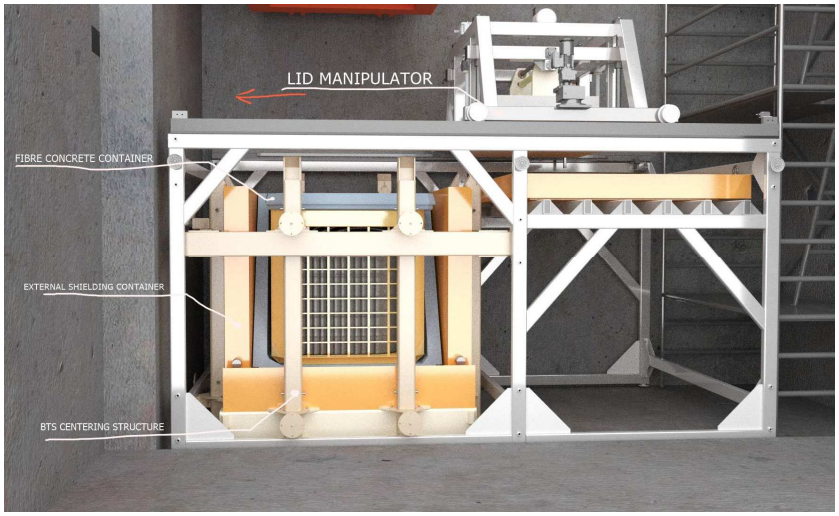




BTS centring structure with FCC and Shielded FCC – insertion of basket

Manipulator for BTS (containers and shieldings lidding)

Manipulator for BTS is a system for automatically opening of the FCC external shielding (080, 150, 210) and the FCC lid before the basket will be inserted into the FCC. After inserting the basket into FCC, the lid will be automatically closed. Control of the automatic system will be from the BTS control panel placed on the Unit 1 postament.

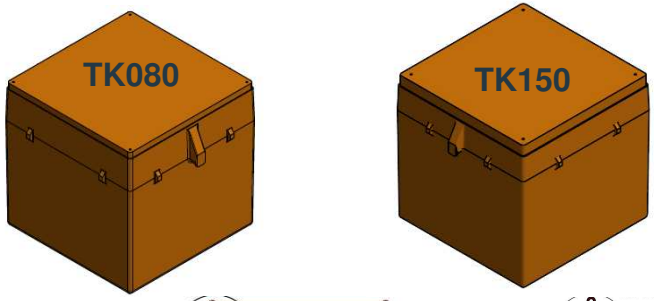


Waste packages for LLW/ILW materials

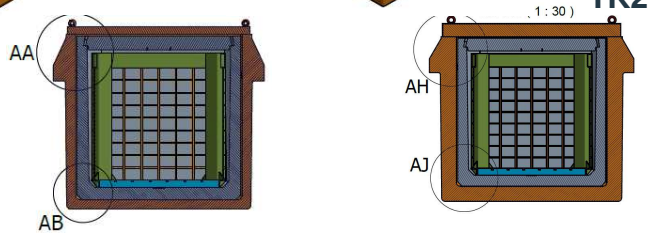
The waste package for the LLW and ILW materials is **Fiber concrete container**. In order to meet the criteria of storing in Interim storage facility some of the FCC will be inserted into external shielding.

For all of the material to be fragmented within the Project were designed three types of external shieldings:

- TK080 – with wall thickness 80mm
- TK150 – with thickness 150mm
- TK210 – with thickness 210mm



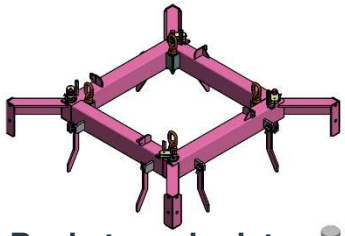
TK210 in BTS centring structure



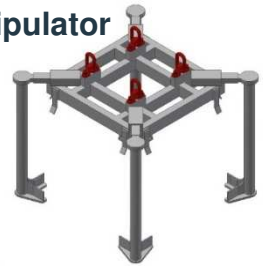
Lifting/manipulation tools

For manipulation with baskets, FCCs and shielded FCC, their removal from the workplaces will be used several lifting and manipulation tools.

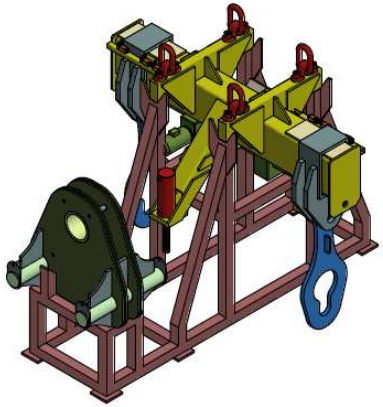
- Basket manipulator
- FCC manipulator – VBK-traverse
- Shielded FCC manipulator – OT-traverse



Basket manipulator



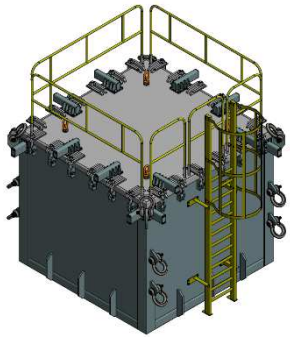
FCC manipulator

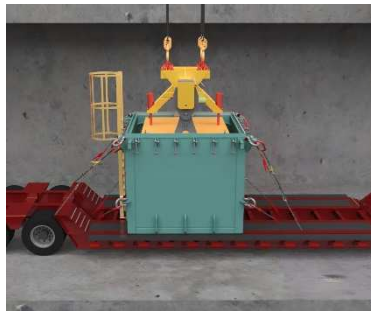


Shielded FCC manipulator

Transport of the final waste packages to IS RAW

The PK90 Transport container is designed for safe and reliable transport of unshielded and shielded Fiber-Reinforced Concrete Containers (FCC) filled with solid radioactive materials intended for storage in the IS RAW, while the shielded FCC is meant a FCC container inserted into the steel shielding container TK080, TK150 and TK210 with the wall thickness 80, 150 or 210 mm, respectively. The PK90 Transport Container is a B(U) type designed by Company Wood NS.





Sequence of the LLW/ILW management