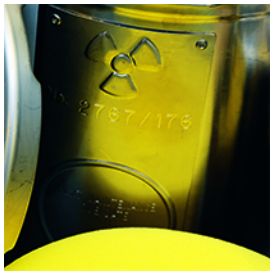

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NEWLY DESIGNED EQUIPMENT SUZA II FOR SLUDGE IMMOBILISATION

One of the most important and time-consuming projects in the framework of decommissioning of NPP A1 is the solidification of sludge from Long-term storage. The Long-term store of spent fuel is an area where the amount of highly radioactive liquid waste has gradually increased. This is the outcome of the characteristics of the spent fuel and the methods of handling it.

This sludge is a mixture of organic compounds –mainly dowtherm and a mixture of water and insoluble inorganic compounds that often has very high of 137Cs content as the main gamma emitting radionuclide.
The total amount of this sludge mixture after relocation into the new NPN 2 tank is 12 m3 cubic metres. The NPN 2 tank is a double shell tank equipped with a stirrer which ensures thorough and safe homogenization prior to sludge treatment using the newly manufactured SUZA II equipment.
SUZA II DEVICE
Suza II is a modular semi-automated device enabling the fixation of radioactive sludge into a cement or a geopolymer matrix. It is a four module device that provides sludge solidification in 200 dm3 drums and 60 dm3 kegs. It consists of the following units:
 Pumping module
 Stock module
 Fixation module
 Transport module
Included in the device is a gantry crane, which is used to handle the drums of final product. The silo is a separate part and is intended for the storage of the cement raw material or metakaolin.The Transport module includes two movable trucks. It is a waste-free technology as the rinse water residues from the stirrer and sediments are returned back to the process.
The whole process of the sludge solidification operation is observed from a remote operating panel which is installed in an adjoining room. In this room are the output signals from the cameras and control sensors for the measurement of mass flow, (sludge, chemical additives) and the dose rate of sludge during pumping and all of the fixation steps.
CONCLUSION
The main task of SUZA II device is to resolve the lingering issues with the removal and subsequent treatment of the radioactive sludge which is an undesirable ecological burden on the environment into a solid and safe form for handling and storage by meeting all safety and radiation requirements.

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