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Practical Experiences and Lessons Learned in Radioactive Waste Processing during Decommissioning of NPP V1 - Legislative, Safety, Environmental, Economical and Technical Aspects

The decommissioning of each nuclear site is associated with the production of a large amount of radioactive waste, which must be processed as efficiently as possible. Various solid and liquid wastes, in different quantities are located in a variety of sometimes difficult-to-access locations across large sites. The longer these radioactive wastes (RAW) are stored, the harder they can be technically and economically processed. The choice of an appropriate methods for waste pre-treatment and conditioning depends on various aspects and influencing factors such as the categorization of the waste to be treated in terms of radioactivity, its chemical and physical properties and homogeneity. The decision-making process also includes safety aspects, economic and environmental issues, availability, and sustainability of raw materials. Moreover, the final product - waste processed by selected technologies must be in accordance with the relevant waste acceptance criteria (WAC) for disposal and the entire process must be approved by the competent supervisory authorities.

Based on these criteria the advanced novel technologies for treatment of historical radioactive waste in the first stage of the V1 NPP decommissioning were selected and after approval by the supervisory authorities were successfully applied. Processing of other waste e.g., waste from the decontamination of various tanks or waste arising during the dismantling of the primary circuit components continues in the second stage of decommissioning.

The article presents the results of radioactive waste processing, the balance of processed waste as well as safety, environmental and economic aspects from the point of view of operation as well as the disposal of the final product in the radioactive waste repository.

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