

STAGES OF USING RADIOACTIVE WASTE DISPOSAL FACILITIES FOR DISPOSAL OF HIGH LEVEL RADWASTE

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Currently, in most countries with a developed nuclear industry, the generally recognized concept of high level radioactive waste management (HLW) is being implemented, which provides HLW's conditioning and disposal. The complexity of these issues is about national differences in approaches to cost estimation, difficulties in the design, development time and construction of radioactive waste disposal facility (RWDF), as well as the need to take into consideration the cost estimate for the entire life cycle of RWDF.

The pre-operational stage includes all the work necessary for the construction and commissioning of the RWDF. At the operational stage, the areas of the RWDF are loaded with containers with HLW materials. The phase of closing the RWDF requires the construction of special protective barriers that ensure the localization of HLW within the boundaries of the RWDF and prevent possible external impacts on the HLW containers. After the closure of the RWDF, the stage of monitoring the environment and the status of the storage begins, which can be divided into 2 categories: active control and passive control. The terms of design, construction and operation of RWDF for various categories of radioactive waste vary from tens to more than 100 years. In average, the duration of the RWDW life cycle (from the initial stage to the end of the active control stage) is 100 years for very low-level waste and 300-500 years for low-level waste and intermediate level waste (ILW). For disposal of long-lived ILW and HLW of spent nuclear fuel the question of the duration of the active control stage remains controversial.

Thus, we can say that HLW management is a complex process that requires a significant level of technical planning and preparation of various aspects of the operational cycle.