Probabilistic safety assessment is one of the most effective tools of qualitative research and a quantitative assessment of the level of safety of the operating nuclear power plants. PSA needs to combine the proven effectiveness of mathematics and a deep knowledge of the technological characteristics of the investigated blocks.

**Keywords:** nuclear power plant (NPP), risk, probabilistic safety assessment (PSA).

Nuclear power plant (NPP) is a source of potential danger or radiation impact on staff, population and the environment due to the accumulation in the process of exploitation of significant quantities of radioactive products and the availability of basic possibilities of output in case of accidents behind provided boundaries. The degree of radiation risk is directly dependent on the level of NPP safety, which is one of the main properties of the NPP, determining the possibility of their use as sources of thermal and electric energy.

Ensuring safe operation of nuclear power plants is a priority as organizations designing and operating nuclear power plants and the bodies of state management of the use of atomic energy and state regulation of safety at use of atomic energy [1].

Requirements for carrying out studies on comprehensive assessment of safety level of NPP units are included in a number of Federal and regulatory documents and are mandatory for the operating organizations at obtaining licenses for operation of nuclear power plants, including the lifetime extension of nuclear power plants.

Probabilistic safety assessment (PSA) is a tool which gives opportunity to assess integrally current level of security and, if necessary, to identify ways to improve it.

PSA allows systematically and comprehensively analyze all sorts of emergencies and identify the major sources of accidents at the facility, and identify what features of the project and/or operation of nuclear power plants are the most significant from the point of view of risk of undesirable consequences. Thus, the results of the probabilistic assessment provide the basis for decision-making on implementation of activities with the purpose of increase of level of security, allowing quantitatively "weigh" events for their impact on risk reduction[2].

PSA can be performed at different stages of the life cycle of the NPP, including design, construction, commissioning, operation and decommissioning. Most effectively and cheaper PSA can be used in the design phase where the results can be a basis for the development of technical solutions aimed at improving safety and implemented directly in the project of NPP. The use of PSA at the design stage allows to create NPP with the specified security level.

**BIBLIOGRAPHY**


**THE ASSESSMENT OF THE EFFICIENCY OF WASTEWATER TREATMENT AT THE MINSK SEWAGE TREATMENT STATION**

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In this paper, the efficiency of wastewater treatment is estimated from the data of local monitoring. The calculation of the efficiency of wastewater treatment at the Minsk sewage treatment station showed that the degree of water purification at this enterprise is high and, on average, is 86,2 %.