Construction of a program for the integrated monitoring of the state of surface waters in the zone of observation of nuclear power plants using the example of the Belarusian Nuclear Power Plant

Creation of observation networks and complex monitoring of environmental parameters, processes and phenomena of natural origin of the NPP location area is one of the priorities at all stages of the plant operation. Thus the design and construction of nuclear power plants requires the development of a comprehensive environmental monitoring program. Below are the main tasks to be solved when creating this program:

- design of observation networks;
- justification of the controlled components of the environment, their parameters and characteristics that will be monitored;
- obtaining background parameters and characteristics of environmental processes in the area and site location of nuclear power plants for risk assessments and confirmation of the design bases;
- creation of the optimal structure of the monitoring system according to the applied methods, techniques, equipment, networks of ground and well observations with specification of requirements to the equipment involved in the monitoring;
- optimization of the list of parameters to be monitored;
- optimization of frequency and accuracy of measurements and observations;
- development of the database structure, including: collection, processing, analysis, accumulation, and distribution of monitoring information.

The study of the state of surface waters is one of the main directions of integrated environmental monitoring. The main indicators of surface water pollution in the area of NPP location are hydrochemical parameters and concentration of radionuclides. The structure of surface water monitoring is shown in figure 1.

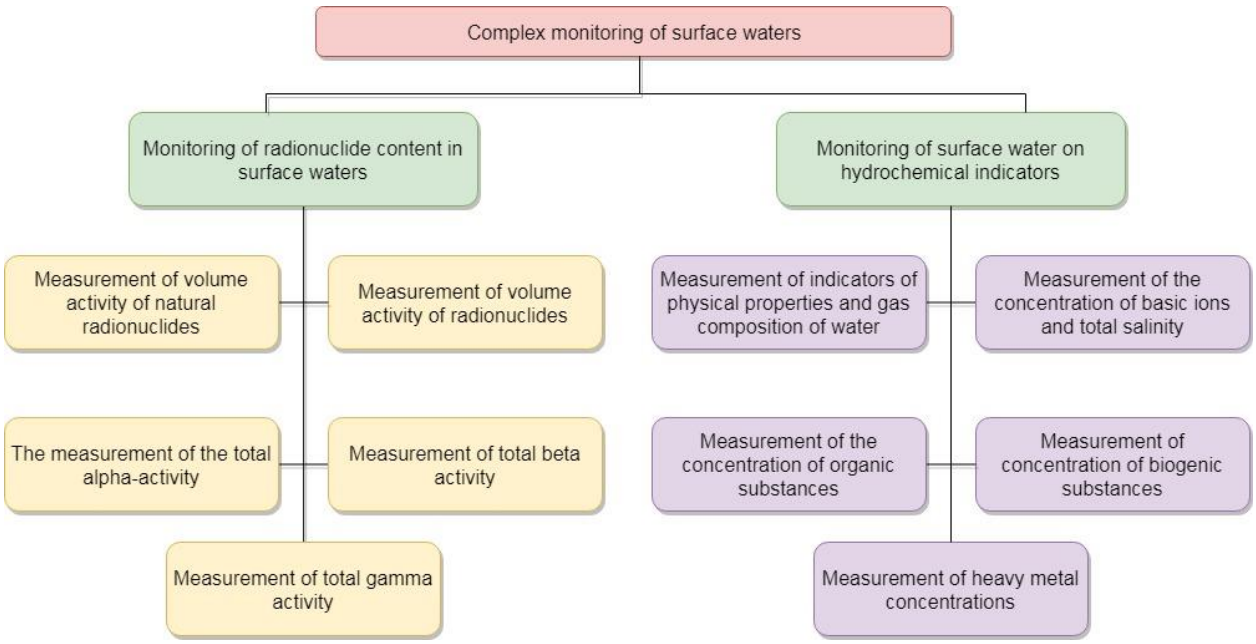


Figure 1. Structure of complex monitoring of surface waters.

The list of radionuclides and hydrochemical indicators in accordance with the submitted groups is determined by the project documentation and national legislation.