

OPTIMIZATION OF THE RADIATION PROTECTION AT OPERATION OF NUCLEAR OBJECTS OF THE MARINE TECHNOLOGY

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Introduction: The solution of the estimation of the system of radiation protection (SRP) condition at nuclear objects of marine technology (NOMT) is possible by applying of optimization systems. That is why the structural-functional model of SRP has been developed.

Objectives: The objective of this work is to diminish expenses on the radiation protection.

Methods: New structure of SRP has been used to solve this problem

- organizational subsystem;
- engineering–technical subsystem;
- medical–sanitary subsystem.

Results: The objective function of SRP is characterized by the presence of two components. The first component is determined by elements that reduce the intensity of the radiation exposure. It expands the area of the safe state of source of ionizing radiation (SIR). To increase the limits of safe operation of the IRS the passive elements of SRP are applied, the function of which consists in the absorption of radiation, clearing of the polluted environments and creating insurmountable distance barriers. These elements of SRP are technical level of the system, basis of which are limits of safe operation.

The second component includes functions of the elements reducing negative consequences of influence of ionizing radiation on the person. The active elements of SRH are basis for limitation of the working time in conditions of influence of ionizing radiation, on the use of individual protective equipment, on the sanitary zoning, on the sanitary-epidemiological supervision and monitoring of the health status of the personnel and the population.

These elements of SRP are considered to be medical-sanitary level of the system, the basis of this system is hygienic norms. On this level of radiation protection the leading role is played by the control of the individual equivalent of the dose of an internal and external irradiation.

The increase of efficiency of SRP considered levels interaction is the basis of its optimization. The substantiation and the choice of the concrete method of optimization can be made on the basis of model's system. It allows to estimate efficiency of functioning SRP that is an important practical task in the field of sanitary-and-epidemiologic supervision for NOMT.



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