

About regulatory approaches to physical protection of nuclear vessels (vessels with small modular reactors)

The Russian Federation has a unique experience in the operation of vessels powered with small modular reactors (icebreakers and lighter aboard ships). In accordance with Russian legislation, physical protection is required for the operation of such nuclear vessels. The Federal Environmental, Industrial and Nuclear Supervision Service (Rostekhnadzor) is responsible for the development and support of a regulatory and legal framework for nuclear safety and security, including physical protection of nuclear vessels.

Rostekhnadzor is an independent Russian state nuclear safety and security regulatory authority in the field of atomic energy use. Rostekhnadzor is authorized to develop, approve and put into force federal rules and regulations in the field of atomic energy use for establishing among others requirements for the physical protection of nuclear vessels.

Currently, the following main regulatory legal acts in the field of physical protection of nuclear vessels are effective in Russia:

Federal Law of November 25, 1995 No. 170-FZ “On the Use of Atomic Energy”;

“Rules for the Physical Protection of Nuclear Materials, Nuclear Installations and Storage Facilities for Nuclear Materials”(Decree of the Government of the Russian Federation);

Requirements for the physical protection of nuclear vessels and vessels transporting nuclear materials (federal rules and regulations in the field of atomic energy use, NP-085-10).

In addition to nuclear vessels, the abovementioned regulatory documents also establish the requirements for physical protection of:

vessels carrying out inter-facility transportation of nuclear materials;

nuclear technology service vessels (specialized vessels for transporting, storing, performing technological operations and nuclear fuel reloading);

floating nuclear power plants.

A physical protection system should be created at a nuclear vessel as well as at a stationary nuclear facility. Physical protection system includes a set of engineering and technical means of physical protection, physical protection personnel and organizational measures and should perform similar tasks:

deterrence of unauthorized actions;

timely detection of unauthorized actions;

detention of the intruder;

response to unauthorized actions.

But unlike a stationary nuclear facility, the provision of physical protection at nuclear vessels has its own features and differences. For example:

priority task of the preservation of vessel vitality;

compliance with the requirements of transport safety;

allocation of protected areas in the limited space of the vessel;

providing physical protection of the vessel in the pier;

procedure for notification of unauthorized actions;

conducting a vessel vulnerability analysis and assessment of the physical protection system effectiveness of the nuclear vessel.

These differences and features require appropriate approaches to the legal regulation of the physical protection of nuclear vessels.

The report contains the review of current state of the regulatory framework for the physical protection of nuclear vessels (vessels with small modular reactors) in the Russian Federation, the role of Rostekhnadzor in the development and approval of requirements for the physical protection of such vessels, regulatory approaches to physical protection of vessels, their features and differences in comparison with stationary nuclear installations.

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Male

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