

The Russian Federal Inspectorate for Nuclear and Radiation Safety  
(Gosatomnadzor of Russia)

FEDERAL RULES AND REGULATIONS ON THE USE OF NUCLEAR ENERGY

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REGULATIONS ON PHYSICAL PROTECTION OF RADIATION SOURCES,  
STORAGE FACILITIES, AND RADIOACTIVE MATERIALS

NP-034-01

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**Regulations on physical protection of radiation sources, storage facilities, and radioactive materials.  
NP-034-01**

**Gosatomnadzor of Russia  
Moscow, 2002**

This regulatory document sets out requirements concerning provision of physical protection of radiation sources, storage facilities and radioactive materials.

Federal laws "Use of Atomic Energy", "Public Radiation Safety", "Basic Sanitary Rules for Radiation Safety SP 2.6.1.799-99", Regulations of Physical Protection of Nuclear Materials, Nuclear Facilities and Nuclear Storage Facilities, IAEA recommendations "Physical Protection of Nuclear Material and Nuclear Facilities" INFCIRC/225/Rev.4 were all used in the development of the present regulatory document.

Issued for the first time.

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The regulatory document has taken into account comments and proposals of the Ministry of Health of the Russian Federation, Ministry of Internal Affairs of the Russian Federation, State Customs Committee of Russia, General Directorate of Non-departmental Security of the Ministry of Internal Affairs of the Russian Federation, the Department of Sanitary Inspection of the Ministry of Health of the Russian Federation, Research Center "Ohrana", Federal State Unitary Enterprise – Special Scientific-Production Association "Aileron", State Unitary Enterprise of Moscow "Radon", departments and inter-territorial districts of Gosatomnadzor of Russia and other interested organizations following discussion at meetings and drafting of coordinated decisions.

The present Federal Regulations have passed legal examination of the Ministry of Justice of the Russian Federation (letter No. 07/1600-YUD of the Ministry of Justice of the Russian Federation, dated February 19, 2002).

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## Terms and definitions

1. **Subversive action** – any deliberate action with respect to nuclear materials (NM), nuclear installations (NI), storage facilities (SF), radiation sources (RS), radioactive materials (RM), or vehicles carrying NM, NI, RS, RM, or radioactive waste (RW), which can directly or indirectly lead to emergency and endanger the health or life of people due to exposure to radiation effect or lead to radioactive contamination of the environment.
2. **Territories contaminated with radionuclides** – the territory (land and water at industrial, sanitary protection zones and surveillance zones) of nuclear facilities, where there are quantities of RMs in excess of the minimum values set by the Federal Rules and Regulations on use of nuclear energy, and which can lead to radiation.
3. **Checkpoint** – a specially equipped place through which access is controlled in accordance with the access control regime.
4. **Offender** – a person who commits or attempts to commit unauthorized actions, as well as a person assisting him in doing so.
5. **Unauthorized action** – committing or attempting to commit actions of sabotage and theft of NM, RS, RM, RW, unauthorized access, carrying (transportation) of prohibited items, and inactivating physical protection system facilities.
6. **Unauthorized access** – entry of persons who do not have access rights to protected areas, buildings, structures, premises or into cargo compartments of vehicles transporting NM, RS, RM, and RW.
7. **List of threats** – a document that outlines the potential possibilities of subversive action concerning RS, SF, RM, and theft of RS and (or) RM, and RW.
8. **Rule of two (three) persons** – the principle of teamwork (including during unsealing and delivery of rooms under protection), based on the requirement for simultaneous presence of at least two (three) persons in one workplace or in the same room to reduce the possibility of unauthorized actions.
9. **Storage facilities (NM and RS storage facilities, RW repository)** – fixed installations and facilities, not related to NI and RS, which are used for storage of NM and RM, and storage or disposal of RW.
10. **Radiation sources** – complexes, installations, devices, equipment and products – not related to NF – which contain RM or generate ionizing radiation.
11. **Radioactive materials** – non-nuclear materials that emit ionizing radiation.
12. **Radioactive waste** – disposable NM and RM.
13. **Self-protection** – a set of organizational and technical measures undertaken during working hours by employees (personnel) of an operating organization, organization, or enterprise in order to prevent unauthorized access by unauthorized persons to rooms, buildings and areas where work with RS, RM, and RW is being carried out, and to provide the safety of RS, RM and RW. In off-hours, such rooms, buildings and areas are protected by facilities of the physical protection system of RS, SF, and RM.
14. **Physical protection system for RS, SF, and RM** – a set of organizational measures, facilities and actions designed to provide physical protection of RS, SF, and RM.
15. **Security Service** – a structural unit of a nuclear or radiation dangerous facility designed to organize and monitor implementation of measures on providing physical protection, and to perform other special functions.
16. **Threat** – a potential possibility of sabotage or theft of NM, RS, RM, and RW.
17. **Tamper indication devices** – facilities of the control system of RS, SF, and RM (print, seals), designed to detect unauthorized access to RS, RM, and RW, and located in SF.

### 1. General provisions

- 1.1. The present Regulations on physical protection of radioactive sources, storage facilities, and radioactive materials (hereinafter referred to as “Regulations”) are designed in accordance with Federal Law “Use of Nuclear Energy” regarding the establishment of rules and regulations concerning providing physical protection of nuclear facilities.
- 1.2. The present Regulations establish:
  - the terms and definitions relating to the physical protection of RS, SF, and RM;
  - the purpose of physical protection of RS, SF, and RM, and requirements concerning provision of physical protection of RS, SF, and RM.
- 1.3. The present Regulations apply to providing of physical protection of RS, SF, and RM at all stages of design, construction, operation and decommissioning, as well as in the handling of RM.
- 1.4. The present Regulations do not apply to providing of physical protection of:

- complexes, installations, devices, equipment and products – not related to NF – which generate ionizing radiation;
  - SF used for storage of NM, storage or disposal of RW, that contain disposable NM;
  - territories contaminated with radionuclides;
  - radiopharmaceuticals and a set of reagent for immunological research;
  - products and goods containing radionuclides for which there is sanitary-epidemiological conclusion by the State Sanitary and Epidemiological Supervision that the radiation dose created by them cannot exceed the values given in paragraph 1.4 of the Radiation Safety Standards (NRB-99);
  - RS and RM, in cases if during their use:
    - a) at the workplace, the specific activity of radionuclide is less than the minimum significant specific activity or the activity of radionuclide in an open RS is less than the minimum significant activity shown in the table in Appendix P-4 NRB-99, or the sum of ratios of activities of individual radionuclides to their values given in the table is less than 1;
    - b) in the operating organization, organization, or enterprise, the total activity of radionuclides in open RS does not, by more than 10 times, exceed the minimum significant activity or the sum of ratios of activities of individual radionuclides to their values given in the table in Appendix P-4 NRB-99;
      - NM, NI, RS, RM, and RW during their transportation;
      - NM, NI, RS, SF, and RM under the management of the Ministry of Defense of the Russian Federation.
- 1.5. The operating organization, organization, or enterprise in charge of NM, NI, SF, RS, and RM, shall provide physical protection of RS, SF, and RM, the level of which shall not be lower than those stipulated by the present Regulations.

## **2. Requirements on providing physical protection of radiation sources, storage facilities and radioactive materials**

**2.1.** Physical protection – a kind of activity involving the use of nuclear energy carried out in order to prevent acts of sabotage or theft of NM, RS, RM, and RW.

NM, NI, RS, SF, and RM must be provided with a physical protection system.

**2.2.** Requirements concerning the physical protection system of RS, SF, and RM.

**2.2.1.** Requirements concerning organizational measures to physical protection system of RS, SF, and RM.

Organizational measures to physical protection system of RS, SF, and RM should include a set of organizational measures and documents on issues of organization and providing of physical protection of RS, SF, and RM.

**2.2.1.1.** The complex of organizational measures should include:

- creation of a security service and providing its functioning;
- organization of protection of RS, SF, and RM;
- organization of self-protection of RS, SF, and RM;
- compensatory measures in the event of failure of any part of the facilities of the physical protection system of RS, SF, and RM;
- development and approval of documents on issues of organization and providing of physical protection of RS, SF, and RM;
- monitoring of compliance with providing physical protection system of RS, SF, and RM;
- limiting the number of persons authorized to carry out work with RS, RM, and RW;
- implementing the rule of two (three) persons;
- maintenance of a permit system for access of employees (personnel), seconded officials, visitors and vehicles to the territory of the operating organization, organization, or enterprise, in protected rooms and buildings, as well as maintaining the functioning of the permit system for access to work, documents, and information.

**2.2.1.2.** Documents on issues of organization and provision of physical protection of RS, SF, and RM should include:

- a list of threats;
- a document establishing the category of RS, SF, and RM
- security service regulations;
- a plan for the protection and defense of RS, SF, and RM;
- organizational and administrative documents on appointment of security service officials and an official in charge of the physical protection system of RS, SF, and RM;
- regulations on the permit system for access of employees (personnel), seconded officials, visitors and vehicles to protected rooms, buildings and areas where work with RS, RM, and RW is being carried out, and also regulations on the permit system for access to work, documents, and information;
- a list of persons authorized to carry out work with RS, RM, and RW;

- a plan of interaction between the administration of the operating organization, organization, or enterprise, security service, security guard units and employees (personnel) in normal and emergency situations;
- regulations on self-protection of RS, SF, and RM;
- a plan for inspection of the technical condition and operational capability of facilities of the physical protection system of RS, SF, and RM;
- a document establishing the procedure for the use of tamper indication devices;
- job descriptions of employees supervising the security service, and official in charge of the physical protection system of RS, SF, and RM;
- document on certification of the facilities of the physical protection system of RS, SF, and RM.

**2.2.2.** Requirements for the engineering and technical facilities of the physical protection system of RS, SF, and RM.

**2.2.2.1.** Design, engineering and technological documents should be developed for the engineering and technical facilities of the physical protection system of RS, SF, and RM.

**2.2.2.2.** Requirements for the facilities of the physical protection system of RS, SF, and RM.

The facilities of the physical protection system of RS, SF, and RM should include:

- alarm system facilities, providing continuity in detection of an offender within the perimeter of the territory of the operating organization, organization, or enterprise, in protected areas and buildings;
- surveillance facilities;
- control board of the facilities of the physical protection system of RS, SF, and RM;
- unauthorized access, bringing (transportation) of prohibited items, inactivating physical protection system facilities.
- facilities for detection of the carrying (transportation) of RM at human and vehicle checkpoints;
- communication facilities;
- tamper indication devices;
- utilities (power, lighting, etc.).

The facilities of the physical protection system of RS, SF, and RM should have backup power supply to provide the operational capability of facilities of the physical protection system of RS, SF, and RM through automatic switching of the main power supply to the backup power supply in case of disconnection of the main power supply.

The facilities of the physical protection system of RS, SF, and RM should provide its stable operation in which the failure of any facility of the physical protection system of RS, SF, and RM does not impair its functioning in general and does not lead to a failure of other facilities of the physical protection system of RS, SF, and RM.

**2.2.2.3.** Requirements for the engineering facilities of the physical protection system of RS, SF, and RM.

The engineering facilities of the physical protection system of RS, SF, and RM should include:

- engineering structures (buildings) and specially designed structures;
- human and vehicle checkpoints;
- anti-ram devices at vehicle checkpoints;
- bullet-proof protective equipment for security guards at checkpoints.

The engineering facilities of the physical protection system of RS, SF, and RM should be placed on the possible route of an offender.

All emergency exits in protected rooms and buildings, where RS, RM, and RW are located should be locked and equipped with detection devices, and should provide unhindered exit of people in the case of emergency situations.

**2.2.3.** Requirements to actions of security guard units.

The actions of security guard units should be aimed at:

- protecting RS, SF, and RM against unauthorized actions;
- implementing the mode of access to RS and RM located at SF;
- controlling of access to RS and RM located at SF;
- controlling the facilities of the physical protection system of RS, SF, and RM;
- prompt detection of unauthorized actions and response to them;
- preventing unauthorized actions;
- detention of persons involved in preparation or commitment of unauthorized actions.

2.3. The composition of requirements concerning the system for physical protection of specific RS, SF, and RM should be determined by paragraph 3 of the present Regulations.

### **3. Procedure for determining the composition of requirements concerning the system for physical protection of radiation sources, storage facilities and radioactive materials**

3.1. The operating organization, organization, or enterprise should establish the potential radiation hazard of RS, SF, and RM and the category of RS, SF, and RM by their potential radiation hazards in accordance with Appendix 1.

\* Protection and defense of RS, SF, and RM can be carried out by non-departmental security units in the internal affairs bodies of the Russian Federation based on contracts entered into in accordance with the laws of the Russian Federation, as well as departmental units or private security.

3.2. The potential radiation hazard of RS, SF, and RM should be established in accordance with the materializing of a threat from the list of threats, resulting in a radiation accident.

3.3. For RS, SF, and RM, there should be a differentiated approach to the composition of requirements concerning the system for physical protection of various categories of RS, SF, and RM.

3.4. To establish the categories of RS, SF, and RM by their potential radiation hazard, the operating organization, organization, or enterprise should determine the composition of requirements to system for physical protection of RS, SF, and RM in accordance with Appendix 2.

#### **4. Notification of unauthorized actions concerning radiation sources, storage facilities and radioactive materials**

In the event of unauthorized actions concerning RS, SF, and RM, and finding of missing RS and (or) RM, and RW, the operating organization, organization, or enterprise (regardless of the kind of ownership) should:

- within 1 hour after detection of these actions notify the relevant executive bodies, bodies of the State Sanitary and Epidemiological Supervision of the Ministry of Health of the Russian Federation, Ministry of Internal Affairs of the Russian Federation, Ministry of Emergency Situations of Russia, local authorities of the Russian Federal Security Service, inter-regional territorial districts of Gosatomnadzor of Russia;
- communicate additional information and new facts that became known after notification of the executive bodies specified above;
- provide a report to the executive bodies specified above on unauthorized actions concerning RS, SF, and RM of Category I by their potential radiation hazard within 10 days of discovery of these actions.

#### **Appendix 1**

##### **Classification of radiation sources, storage facilities and radioactive materials according to potential radiation hazard of those**

(according to the Basic Sanitary Rules for Radiation Safety SP 2.6.1.799-99)

Potential radiation hazard of RS, SF, and RM	Category of RS, SF, and RM according to potential radiation hazard
Possible radiation effects on the population and may require measures to protect the population	1
Radiation effects are limited to the sanitary protection zone	2
Radiation effects are limited to the territory where the RS, SF, and RM are located	3
Radiation effects are limited to the premises where the RS and RM are located, and to the SF premises	4

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**Composition of requirements to physical protection system of radiation sources, storage facilities and radioactive materials of various categories**

No.	Requirements to physical protection system of RS, SF, and RM	Category of RS, SF, and RM according to potential radiation hazard			
		1	2	3	4
1	Requirements concerning organizational measures				
1.1	Availability of complex of organizational measures on physical protection system of RS, SF, and RM providing for:				
1.1.1	creation of a security service and providing its functioning	+	+	.	.
1.1.2	organization of protection of RS, SF,	+	+	+	-
1.1.3	organization of self-protection of RS, SF,	+	+	+	+
1.1.4	compensatory measures in the event of failure of any part of the facilities of the physical protection system of RS, SF, and RM	+	+	+	+
1.1.5	development and approval of documents on issues of organization and provision of physical protection of RS, SF, and RM	+	+	+	+
1.1.6	monitoring of compliance with requirements to physical protection system of RS, SF, and RM	+	+	+	+
1.1.7	limiting the number of persons authorized to carry out work with RS, RM, and RW	+	+	+	+
1.1.8	Implementation of the rule of two (three) persons: during work with RS, RM, RW at vehicle checkpoints at human checkpoints	+	+	-	-
1.1.9	maintenance of a permit system for access of employees (personnel), seconded officials, visitors and vehicles to the territory of the operating organization, organization, or enterprise, to protected rooms and buildings and to territories where work with RS, RM, and RW is being carried out	+	+	+	+
1.2	Availability of documents on issues of organization and provision of physical protection of RS, SF, and RM:				
1.2.1	a list of threats	+	+	+	+
1.2.2	a document establishing the category of RS, SF, and RM	+	+	+	+
1.2.3	security service regulations	+	+	-	-
1.2.4	a plan for the protection and defense of	+	+	+	-
1.2.5	organizational and administrative documents on appointment of Security Service officials and an official in charge of the physical protection system of RS, SF, and RM	+	+	+	+
1.2.6	regulations on the permit system for access of employees (personnel), seconded officials, visitors and vehicles to protected rooms, buildings and areas where work with RS, RM, and RW is being carried out	+	+	+	
1.2.7	a list of persons authorized to carry out work with RS, RM, and RW	+	+	+	+
1.2.8	a plan of interaction between the administration of the operating organization, organization, or enterprise, security service, security guard units and employees (personnel) in regular and emergency situations	+	+	+	
1.2.9	regulations on self-protection of RS, SF,	+	+	+	+
1.2.10	a plan for inspection of the technical condition and operational capability of facilities of the physical protection system of RS, SF, and RM	+	+	+	+
1.2.11	a document establishing the procedure for the use of tamper indication devices	+	+	+	+

No.	Requirements to physical protection system of RS, SF, and RM	Category of RS, SF, and RM by their potential radiation hazard			
		1	2	3	4
1.2.12	job descriptions of employees supervising the security service, and official in charge of the physical protection system of RS, SF, and RM	+	+		
1.2.13	document on certification of the facilities of the physical protection system of RS, SF, and RM	+	+	+	+
2	Requirements for the engineering and technical facilities of the physical protection system of RS, SF, and RM				
2.1	Design, engineering and technological documents should be developed for the engineering and technical facilities of the physical protection system of RS, SF, and RM	+	+	+	+
2.2	The facilities of the physical protection system of RS, SF, and RM should include:				
2.2.1	facilities of alarm system, providing continuity in detection of an offender within the perimeter of the territory of the operating organization, organization, or enterprise, in areas and buildings Note. For RS, SF, and RM of Category 1, the facilities of alarm system, providing continuity in detection of an offender within the perimeter of the territory of the operating organization, organization, or enterprise, should work on at least two physical principles	+	++	+	-
2.2.2	surveillance facilities	+	-	-	-
2.2.3	control board of the facilities of the physical protection system of RS, SF, and RM. Note. For RS, SF, and RM of Category 1, the control board of the facilities of the physical protection system of RS, SF, and RM should be located in a specially adapted room that has bullet-proof doors and windows.	+	+	+	+
2.2.4	facilities for detection of the bringing in of RM at human checkpoints	+	+	+	
2.2.5	facilities for detection of the transportation of RM at vehicle checkpoints	+	+	+	
2.2.6	communication facilities	+	+	+	+
2.2.7	tamper indication devices: in buildings in rooms	+	+	+	+
2.2.8	utilities (power, lighting, etc.)	+	+	+	+
2.3	The facilities of the physical protection system of RS, SF, and RM should have backup power supply to provide the operational capability of facilities of the physical protection system of RS, SF, and RM through automatic switching of the main power supply to the backup power supply in case of disconnection of the main power supply	+	+	+	



No.	Requirements to physical protection system of RS, SF, and RM	Category of RS, SF, and RM by their potential radiation hazard			
		1	2	3	4
2.4	The facilities of the physical protection system of RS, SF, and RM should provide its stable operation in which the failure of any facility of the physical protection system of RS, SF, and RM does not impair its functioning in general and does not lead to a failure of other facilities of the physical protection system of RS, SF, and RM	+	+	+	
2.5	The engineering facilities of the physical protection system of RS, SF, and RM should include:				
2.5.1	engineering structures (buildings)	+	+	+	-
2.5.2	specially designed structures	+	+	+	+
2.5.3	human checkpoints	+	+	+	-
	vehicle checkpoints	+	+	+	
2.5.4	anti-ram devices at vehicle checkpoints	+	+	-	-
2.5.5	bullet-proof protective equipment for security guards at	+	-	-	-
2.6	The engineering facilities of the physical protection system of RS, SF, and RM should be placed on a possible route of an offender	+	+	+	
3.	The actions of security guard units should be aimed at:				
3.1	protection of RS, SF, and RM against unauthorized actions	+	+	+	
3.2	implementation of mode of access to RS and RM located at SF	+	+	+	
3.3	control of access to RS and RM located at SF	+	+	+	-
3.4	controlling the facilities of the physical protection system of RS, SF, and RM	+	+	+	
3.5	prompt detection of unauthorized actions and response to them	+	+	+	
3.6	prevention of unauthorized actions	+	+	+	
3.7	detention of persons involved in preparation or commitment of unauthorized actions	+	+	+	

Note. The sign "+" denotes a requirement for compulsory execution, "-" means no requirements or it is not necessary.