

RULES

FOR THE CLASSIFICATION AND CONSTRUCTION OF NUCLEAR SHIPS AND NUCLEAR SUPPORT VESSELS

PART X PHYSICAL SECURITY

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RULES FOR THE CLASSIFICATION AND CONSTRUCTION OF NUCLEAR SHIPS AND NUCLEAR SUPPORT VESSELS

Rules for the Classification and Construction of Nuclear Ships and Nuclear Support Vessels developed by Russian Maritime Register of Shipping (RS, the Register) have been approved in accordance with the established approval procedure and come into force on 1 October 2022.

The present edition is based on the 2022 edition of the Rules for the Classification and Construction of Nuclear Ships and Floating Facilities and on the 2017 edition of the Rules for the Classification and Construction of Nuclear Support Vessels, taking into account Circular Letters No. 110-312-1-1695c dated 04.02.2022 and No. 110-312-1-1702c dated 14.02.2022, amendments and additions developed immediately before publication.

The Rules set down specific requirements for the nuclear ships, nuclear support vessels and supplement the Rules for the Classification and Construction of Sea-Going Ships and the Rules for the Equipment of Sea-Going Ships of Russian Maritime Register of Shipping.

The Rules are published in the following parts:

- Part I "Classification";
- Part II "Safety Standards";
- Part III "Hull";
- Part IV "Stability. Subdivision";
- Part V "Fire Protection";
- Part VI "Nuclear Steam Supply Systems";
- Part VII "Special Systems";
- Part VIII "Electrical and Automation Equipment";
- Part IX "Radiation Safety";
- Part X "Physical Security".

REVISION HISTORY

(purely editorial amendments are not included in the Revision History)

For this version, there are no amendments to be included in the Revision History.

1 GENERAL

1.1 The system of the PS engineering facilities of the nuclear ships and nuclear support vessels¹ shall be subject to technical supervision by the Register.

1.2 Definitions and explanations relating to adopted abbreviations and terms are given in Part I "Classification".

¹ Hereinafter referred to as "the NS vessels".

2 GENERAL REQUIREMENTS

2.1 The nuclear ships and NS vessels shall be provided with the facilities for PS of the nuclear materials, nuclear plants and radioactive waste.

2.2 Measures taken to provide PS shall not impede immediate and safe entrance/escape from any space in the event of an accident.

2.3 The PS engineering facilities system comprises engineering and technical facilities.

2.3.1 The PS engineering facilities include physical barriers and engineering equipment of the secured areas. Physical barriers are structural components of the hull and superstructures: decks, bulkheads, doors, hatch covers and purpose-built structures (obstructions, grating, reinforced doors).

2.3.2 The PS technical facilities include the following main systems:

- .1** intrusion protection system;
- .2** security alert system;
- .3** access monitoring and control system;
- .4** optoelectronic surveillance and situation assessment system;
- .5** operational communication and address system;
- .6** data protection system;
- .7** lighting system.

2.3.3 The PS engineering and technical facilities shall be controlled from the control stations. The operator's consoles shall display incoming signals and data in at least two modes of three available: visual, light and audible. The access to control station spaces shall be provided by means of test and access control facilities.

2.4 The secured and limited access areas shall be determined on board the nuclear ships and NS vessels.

2.5 All entrances from/exits to the secured spaces shall be equipped with the detection facilities, access monitoring and control means and, where necessary, with the surveillance and situation assessment arrangements.

2.6 Failure or breakdown of any component shall not result in malfunction of the PS technical facilities system.

2.7 Single PS technical facilities may ensure compliance with the requirements imposed to one or several functional systems.

2.8 Cabling of the PS system shall be properly protected on open decks of the ship.

2.9 The availability of spare parts and arrangements shall be defined by the manufacturer.

2.10 The electrical equipment for the PS engineering and technical facilities shall comply with the requirements of Part XI "Electrical Equipment" of the Rules for the Classification and Construction of Sea-Going Ships¹.

2.11 Computers and computer-based systems, included into the PS engineering facilities system shall comply in full with the requirements set for the similar equipment mentioned in Section 7, Part XV "Automation" of the Rules for the Classification.

¹ Hereinafter referred to as "the Rules for the Classification".

3 PHYSICAL BARRIERS AND ENGINEERING EQUIPMENT

3.1 The physical barriers shall comply in full with the requirements of Section 7, Part III "Equipment, Arrangements and Outfit" and Section 2, Part VI "Fire Protection" of the Rules for the Classification and the requirements of this Section.

3.2 The physical barriers shall provide:

- .1** stalling (slowing down) of unauthorized people;
- .2** opening doors from inside the secured space;
- .3** emergency unlocking of doors (locking devices) from continuously manned control station.

3.3 The engineering equipment of the secured areas shall prevent attempts of unauthorized access and carrying of prohibited objects.

3.4 Check points/stations shall be fitted with arrangements for protection of personnel responsible for control and check operations against small-arms weapons.

4 INTRUSION PROTECTION SYSTEM

4.1 The intrusion protection system shall detect unauthorized actions on intrusion of unauthorized persons, provide the personnel with data and transmit appropriate signals to other functional PS systems.

4.2 To prevent uncontrolled actions on the intrusion protection system, the following shall be provided:

- .1** remote control of the system components state from the PS system control stations;
- .2** backing up of all events occurred in the PS system.

4.3 In addition to the above requirements, technical facilities of the intrusion protection system shall meet the requirements of Part XI "Electrical Equipment" of the Rules for the Classification.

5 SECURITY ALERT SYSTEM

5.1 The security alert system shall notify on unauthorized actions and indicate the call point.

5.2 Unauthorized shutdown of the security alert system devices shall be excluded.

5.3 Data being transmitted to the operator from the security alert system equipment shall be of higher priority as compared to other signals.

5.4 The security alert system shall transmit alert signals to the PS system control station upon pressing on alert buttons.

5.5 In addition to the above requirements, technical means of the security alert system shall meet the requirements of Part XI "Electrical Equipment" of the Rules for the Classification.

6 ACCESS MONITORING AND CONTROL SYSTEM

6.1 The access monitoring and control system shall provide automatic and remote control for locks (locking devices) actuators according to the established algorithm and monitoring their state.

6.2 Lock (locking device) actuators shall actuate only upon reading of identification attribute, which permits access to the secured area at a given time. In case of a power loss in actuators, locks (locking devices) shall be secured in the open position.

6.3 The following provisions shall be made:

.1 protection of signals being generated within the access monitoring and control system;

.2 protection of facilities against unauthorized access which entails attempts to change the system operation mode or steal/erase data;

.3 monitoring of the facilities' operability.

6.4 The alert signal shall be generated in case of breaking/attempting to break the components which when impacted may result in unauthorized passage/malfunction of the system operation.

6.5 Facilities and devices of the central control station of the access monitoring and control system shall provide the following:

.1 locking and unlocking of doors with automatical recording of events to the event log;

.2 monitoring of authorized access of the crew (other people) to secured areas and preventing attempts for unauthorized access within the specified time;

.3 submission of data on attempts of unauthorized access as well as forced actions on gate structural components to the PS system personnel;

.4 automatic saving of data (with recording of data and time) on current events, attempts for unauthorized access, states of access monitoring and control devices and elements.

6.6 The following provisions shall be made for people attending lobbies of critical areas:

.1 possibility for quick escape in case of accident;

.2 monitoring and surveillance over people within the lobby;

.3 maintenance of internal microclimatic conditions at the required level rated for possible long-term staying of people.

6.7 In addition to the above requirements, technical means of the access monitoring and control system shall meet the requirements of Part XI "Electrical Equipment" and Part XV "Automation" of the Rules for the Classification.

7 OPTOELECTRONIC SURVEILLANCE SYSTEM

7.1 The optoelectronic surveillance and situation assessment system shall provide surveillance in secured areas and transmission of visual data to the PS system control point(s) and recording of the received data.

7.2 Technical facilities shall be protected against unauthorized access.

7.3 Technical facilities shall be tested for faults and control station operator shall be properly notified on such a matter.

7.4 In addition to the above requirements, the surveillance and situation assessment facilities shall comply with Part XI "Electrical Equipment" of the Rules for the Classification.

8 SECURITY LIGHTING SYSTEM

8.1 Security lighting shall be capable of automatic switching-on upon actuation of the intrusion protection system.

8.2 All switchgears of the security lighting system shall be protected against unauthorized actions.

8.3 The security lighting system shall be switched over to stand-by power supply without decrease in lighting intensity of the supervised area.

8.4 The security lighting system facilities shall comply with the requirements of Part XI "Electrical Equipment" of the Rules for the Classification and the requirements of this Section.

9 OPERATIONAL COMMUNICATION SYSTEM

9.1 The operational communication system shall be used for voice data exchange between the PS system personnel by means of wire and radio communication.

9.2 The operational communication system shall be provided by the system operating independently on other ship's communication systems and designed only for the PS purposes.

9.3 The operational communication system shall be capable of recording voice conversations both manually and automatically and indicating their time and duration.

9.4 The operational communication system equipment shall be capable of isolating the unauthorized connection.

9.5 The operational communication system shall meet the requirements of Part XI "Electrical Equipment" of the Rules for the Classification and the requirements of Part IV "Radio Equipment" of the Rules for the Equipment of Sea-Going Ships¹.

¹ Hereinafter referred to as "the Rules for the Equipment".

10 POWER SUPPLY SYSTEM OF PS FACILITIES

10.1 The space where the PS system switchboard is located shall be equipped with the access monitoring and control means and intrusion protection system arrangements.

10.2 The PS facilities shall be switched over to stand-by power supply and vice versa without generating false alert signals.

10.3 The power supply units and cable networks shall be protected against unauthorized actions regarding their breakdown.

10.4 The power supply system of the PS engineering facilities system shall comply with the requirements of Part XV "Automation" of the Rules for the Classification and the requirements of this Section.

Russian Maritime Register of Shipping

**Rules for the Classification and Construction
of Nuclear Ships and Nuclear Support Vessels
Part X
Physical Security**

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