



RUSSIAN MARITIME REGISTER OF SHIPPING

CIRCULAR LETTER

No. 110-312-1566c

dated 26.05.2021

Re:

amendments to the Rules for the Classification and Construction of Nuclear Ships and Floating Facilities, 2018, ND No. 2-020101-112-E

Item(s) of supervision:

technical documentation on nuclear ship (floating facility)

Entry-into-force date:

14.06.2021

~~Valid till:~~

~~Validity period extended till:~~

~~Cancels / amends / adds Circular Letter No.~~

~~dated~~

Number of pages:

1 + 6

Appendices:

Appendix 1: information on amendments introduced by the Circular Letter

Appendix 2: text of amendments to Parts I "General", II "Classification", VIII "Nuclear Steam Supply Systems" and XIII "Physical Security"

Director General

Konstantin G. Palnikov

Text of CL:

We hereby inform that the Rules for the Classification and Construction of Nuclear Ships and Floating Facilities shall be amended.

It is necessary to do the following:

1. Bring the content of the Circular Letter to the notice of the RS surveyors, interested organizations and persons in the area of the RS Branch Offices' activity.
2. Apply the provisions of the Circular Letter when performing technical supervision during construction of nuclear ships and floating facilities contracted for classification under construction on or after 14.06.2021.
3. Apply the provisions of the Circular Letter when performing technical supervision during construction of nuclear ships and floating facilities contracted for classification under construction before 14.06.2021, as far as reasonable and practicable.
4. Apply the provisions of the Circular Letter during review and approval of the technical documentation on ships contracted for construction or conversion on or after 14.06.2021, in the absence of a contract, the keels of which are laid or which are at a similar stage of construction on or after 14.06.2021, as well as during review and approval of the technical documentation on ships, the delivery of which is on or after 14.06.2021.

List of the amended and/or introduced paras/chapters/sections:

Part I: Section 3

Part II: paras 3.2 — 3.6

Part VIII: paras 2.2.13, 3.1, 3.3 and 3.4

Part XIII: Appendices 1 and 2

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**Information on amendments introduced by the Circular Letter
(for inclusion in the Revision History to the RS Publication)**

Nos.	Amended paras/chapters/sections	Information on amendments	Number and date of the Circular Letter	Entry-into-force date
1	Part I, Section 3	Number of para 3.1 has been deleted. New definition "Steam generating unit" has been introduced	110-312-1566c of 26.05.2021	14.06.2021
2	Part II, paras 3.2 — 3.6	New para 3.2 has been introduced containing requirements in accordance with Part I "Classification" of the Rules for the Classification and Construction of Sea-Going Ships. Paras 3.2 — 3.5 have been renumbered 3.3 — 3.6, accordingly. In new paras 3.3 — 3.6 the marks (*) and (**) have been introduced specifying the types of stamps to mark review results of the technical design documentation and detailed design documentation for nuclear ship and floating facility under construction	110-312-1566c of 26.05.2021	14.06.2021
3	Part VIII, para 2.2.13	New para 2.2.13 has been introduced containing new term "steam generating unit"	110-312-1566c of 26.05.2021	14.06.2021
4	Part VIII, para 3.1	In para 3.1 the marks (*) and (**) have been introduced specifying the types of stamps to mark review results of the technical design documentation on nuclear ship and floating facility	110-312-1566c of 26.05.2021	14.06.2021

Nos.	Amended paras/chapters/sections	Information on amendments	Number and date of the Circular Letter	Entry-into-force date
5	Part VIII, paras 3.3 and 3.4	New paras 3.3 and 3.4 have been introduced containing requirements in accordance with Part I "Classification" of the Rules for the Classification and Construction of Sea-Going Ships	110-312-1566c of 26.05.2021	14.06.2021
6	Part XIII, Appendices 1 and 2	The headings of Appendices 1 and 2 have been amended	110-312-1566c of 26.05.2021	14.06.2021

RULES FOR THE CLASSIFICATION AND CONSTRUCTION OF NUCLEAR SHIPS AND FLOATING FACILITIES, 2018,

ND No. 2-020101-112-E

PART I. GENERAL

3 DEFINITIONS AND EXPLANATIONS

1 **Para 3.1.** Number of the para is deleted. After the definition "Operator's error", new definition "Steam generating unit" is introduced reading as follows:

"Steam generating unit is a unit built on the basis of the nuclear reactor where the components forming main circuit loop of the primary coolant, reactor core, steam generators, hydraulic chambers with primary circulating pumps are located in one integral case. Intended for generation of overheated steam as part of the nuclear steam supply system."

PART II. CLASSIFICATION

3 TECHNICAL DOCUMENTS

2 **New para 3.2** is introduced reading as follows:

"3.2 In the lists specified in 3.3 — 3.4, documentation marked with (*) is the documentation, which review results are documented by stamping in accordance with Fig. 8.2-1, Part II "Technical Documentation" of the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships.

Documentation marked with (**) is the documentation, which review results are documented by stamping in accordance with Fig. 8.2-3, Part II "Technical Documentation" of the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships."

3 **Existing paras 3.2 — 3.5** are renumbered 3.3 — 3.6, accordingly.

4 **Existing paras 3.2 and 3.3 (new paras 3.3 and 3.4)** are replaced by the following text:

"3.3 Technical design documentation on the nuclear ship and floating facility.

In addition to the documents listed in 3.3, Part I "Classification" of the RS Rules, the following technical design documentation on the nuclear ships and floating facilities shall be submitted to the Register for review.

3.3.1 General:

- .1 Information on Safety of Nuclear Power Plant and Ship¹ (refer to Appendix 1) (*);
- .2 Operating Manual for Nuclear Power Plant² (refer to Appendix 2) (*);
- .3 layout of controlled and supervised areas (*);
- .4 water- and gastight plan for the containment and shielding barrier (*);
- .5 list of equipment located within the controlled area (**).

3.3.2 Hull documentation:

- .1 structural diagram for reactor compartment main girders (*);
- .2 structural diagram for biological shielding (*);
- .3 containment drawings (*);
- .4 collision protection diagram (*);

- .5 grounding and stranding diagram (*);
- .6 description of containment leak tightness test instruments and procedures (**);
- .7 calculation results on biological shielding and metal-water shielding tank attachment strength (**).

3.3.3 Documentation on fire protection:

structural fire protection diagram for reactor compartment (may be included into general fire protection diagram for the ship) (*).

3.3.4 Documentation on steam supply system:

list of documents on steam supply system design is specified in 3.1, Part VIII "Nuclear Steam Supply Systems".

3.3.5 Documentation on radiation safety:

- .1 chart for radiation within the ship and on its external surfaces (**);
- .2 memorandum for biological shielding calculation results (**);
- .3 radiation monitoring system for the ship/floating facility (description, schematic diagram, layout on board the ship/floating facility, calculation results and drawings for the system and its equipment, delivery specifications) (**);
- .4 decontamination procedures for spaces and equipment subject to radioactive contamination (**).

3.3.6 Documentation on systems and piping:

- .1 schematic diagrams for systems serving the steam supply system (*);
- .2 calculation results on systems and piping (**).

3.3.7 Documentation on electrical equipment:

schematic power supply diagram for steam supply system consumers, automatic systems and radiation monitoring system (*).

3.3.8 Documentation on automation equipment:

- .1 list of remotely-controlled fittings and valves with types, manufacturers and Register's approval certificates (**);
- .2 control algorithms for steam supply system and steam turbine unit (**);
- .3 functional and schematic diagrams for automation and remote control of steam supply systems, safety systems and systems serving steam supply system (components required for systems" operations shall be specified: sensors, converters, manipulators, actuators, etc.) (*);
- .4 functional and schematic circuits for power air and water systems (*);
- .5 functional and schematic circuits for control management from emergency cooling station (*).

3.4 Detailed design documentation for the nuclear ship/floating facility under construction.

In addition to the documents listed in 3.4, Part I "Classification" of the RS Rules, the following detailed design documentation for the nuclear ships and floating facilities shall be submitted to the Register for review.

3.4.1 Hull documentation:

- .1 drawings for sections and assemblies of reactor compartment main girders (*);
- .2 containment drawings (*);
- .3 biological shielding drawings (*);
- .4 containment test procedure (*).

3.4.2 Documentation on piping:

drawings for piping with layout and piping assemblies penetrating containment and biological shielding, bulkheads, decks and platforms (*).

3.4.3 Documentation on steam supply system:

- .1 layout and securing arrangement drawings for steam supply system equipment (*);
- .2 operating instructions for steam supply system (*);
- .3 test procedure during mooring and sea trials (*).

3.4.4 Documentation on radiation safety (*):

layout and attachment plans for radiation monitoring system equipment (*).

3.4.5 Documentation on electrical equipment (*):

drawings for cable routing within reactor compartment with assemblies penetrating containment and shielding barrier.

3.4.6 Documentation on automation equipment:

- .1 layout and securing arrangement drawings for safety system equipment and systems serving steam supply system (*);
- .2 drawings for cable routing and pulse piping (*);

.3 layout drawings for sensors required for operation of steam supply systems, safety systems and systems serving steam supply system (*).".

PART VIII. NUCLEAR STEAM SUPPLY SYSTEMS

2 SCOPE OF TECHNICAL SUPERVISION

5 **New para 2.2.13** is introduced reading as follows:

"**.13** steam generating unit."

3 TECHNICAL DOCUMENTS

6 **Para 3.1** is replaced by the following text:

"3.1 Technical design documentation on the nuclear ship and floating facility to be submitted to the Register for review shall include:

- .1** description with basic specifications, technical assignment and delivery specifications for steam supply system (**);
- .2** memorandum (**);
- .3** general arrangement drawings for steam supply system (*);
- .4** operation modes of steam supply system (**);
- .5** emergency modes of steam supply system that shall include the following:
 - reactivity change accident analysis (**);
 - analysis of heat removal accidents followed by coolant loss (**);
 - safety systems' reliability design analysis (**);
 - safety analysis by strength conditions (**);
- .6** list of steam supply system equipment indicating the status of technical documentation review by the Register (**);
- .7** schematic diagrams for steam supply systems specified in 2.2.7 — 2.2.10 (*);
- .8** feasibility study on steam supply system safety (**);
- .9** list of facilities for survey of steam supply system equipment (**);
- .10** ways of handling of fuel assemblies and cores and description of handling equipment (**);
- .11** technical documentation on steam supply system equipment specified in 2.2.1 — 2.2.6 and 2.2.13, along with the nuclear ship and floating facility technical design, may be submitted to the Register for review in the following scope:
 - general arrangement drawings with sections and drawings for major parts (*);
 - memorandum or description (**);
 - strength calculation results (**);
 - delivery specifications/draft delivery specifications (**);
 - delivery-acceptance trial programs for prototype and serial equipment (*);
- .12** memorandum for core physical and thermohydraulic calculations (**)."

7 **New paras 3.3 and 3.4** are introduced reading as follows:

"3.3 In the lists specified in 3.1 — 3.2, documentation marked with (*) is the documentation, which review results are documented by stamping in accordance with Fig. 8.2-1, Part II "Technical Documentation" of the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships.

Documentation marked with (**) is the documentation, which review results are documented by stamping in accordance with Fig. 8.2-3, Part II "Technical Documentation" of the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships.

3.4 During review of the plan approval documentation for ships engaged in international voyages, the review results of plan approval documentation, documentation establishing inspection standards during manufacture and assembly of reactor plant shall be documented by

stamping in accordance with Fig. 8.2-5, Part II "Technical Documentation" of the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships."

PART XIII. PHYSICAL SECURITY

8 **Appendix 1.** Heading of the Appendix is replaced by the following text:

"INFORMATION ON SAFETY OF NUCLEAR POWER PLANT AND SHIP".

9 **Appendix 2.** Heading of the Appendix is replaced by the following text:

"OPERATING MANUAL FOR NUCLEAR POWER PLANT".