



Maritime &
Coastguard
Agency

MARINE GUIDANCE NOTE

MGN 679 (M) Nuclear Ships

Notice to all Shipowners, Operators, Masters, Officers, Maritime Administrations, Port Authorities and Recognised Organisations

This notice should be read with [the Merchant Shipping \(Nuclear Ships\) Regulations 2022](#).

Summary

This notice provides guidance on the application of [the Merchant Shipping \(Nuclear Ships\) Regulations 2022 \(SI 2022/1169\)](#), which regulate UK commercial nuclear-powered ships and foreign commercial nuclear-powered ships visiting UK waters. The guidance covers the following aspects:

- Approvals and surveys
- Reactor Installation
- Safety Assessment
- Quality Assurance Programme
- Operating Manual
- Radiation Safety
- Manning and Training
- Ports
- Decommissioning of nuclear-powered ships
- Offences and penalties
- Detention.

1. Introduction/background

1.1 This notice provides guidance on the application of [the Merchant Shipping \(Nuclear Ships\) Regulations 2022 \(SI 2022/1169\)](#) (“the 2022 Regulations”), which implement Chapter VIII in the Annex to the International Convention for the Safety of Life at Sea, 1974 (SOLAS), relating to commercial nuclear-powered ships. [The 2022 Regulations](#) also incorporate the

provisions of IMO Resolution A.491, “Code of Safety for Nuclear Merchant Ships” (“the Nuclear Code”), which contains the basic requirements for the design, construction and operation of nuclear ships, and is intended to be a global standard.

1.2 A nuclear-powered ship is constructed with a nuclear power plant to provide energy to the propulsion system which normally includes components such as a nuclear reactor, heat exchanger, steam generator feeding a steam turbine, and associated piping, pumps, and valves.

1.3 The nuclear reactor generates heat via the fission of nuclear fuel. This causes risks associated with radiation and other hazards arising from concentrated energy sources such as high pressure and high temperature.

1.4 The reactor installation (see [section 3](#) of this MGN) is the total ship main propulsion system, including the nuclear steam supply system which generates the steam for propulsion. It has the same meaning as “nuclear reactor”, which is the term used in the 1965 Act. It also has the same meaning as “nuclear propulsion plant”, which term is used in the Nuclear Code.

1.5 The 2022 Regulations contain requirements for nuclear-powered vessels for the purposes of ensuring safety and environmental protection, with special attention to radiation hazards.

1.6 While the Nuclear Code is based upon established and accepted ship-building, marine and nuclear engineering principles, it is recognised that the Code should be reviewed as necessary to ensure it captures technological progress. The Nuclear Code is currently restricted to conventional types of ships propelled by nuclear propulsion plants with pressurised light water type reactors. There is currently no confirmed information from the IMO on when the next formal review of the Code will be. The Code itself lists reasons for a review; however, it does not specify how frequently the Code should be updated.

1.7 To date, the MCA has not engaged directly with commercial nuclear-powered ships as there are no ships using nuclear-powered propulsion operating under the UK Flag and there are very few nuclear-powered vessels currently operating in the global commercial fleet.

1.8 However, it is recognised that nuclear propulsion could be part of the solution against climate change and proposals may be made in the future to use this technology in order to achieve the necessary reduction of greenhouse gas emissions from shipping.

1.9 Although it is not possible at the present time to provide extensive guidance on this subject, the MCA will provide clarification on a case-by-case basis. The MCA will also endeavour to provide additional guidance when further experience of nuclear-powered ships is acquired.

1.10 The UK regulator for the nuclear energy sector is the Office for Nuclear Regulation (ONR). ONR was established as a statutory public body under [section 77](#) of, and [Schedule 7](#) to, [the Energy Act 2013](#). [Section 68 of the Act](#) provides that ONR’s statutory purposes include protecting persons against risks of harm from ionising radiations from nuclear sites, including through the design and construction of relevant nuclear installations and their associated sites.

1.11 The role of ONR is to ensure the safety and security of nuclear installations on sites in the United Kingdom. This means that certain aspects of the life cycle of a nuclear ship will be subject to legislation enforced by ONR. Starting with the construction of the nuclear reactor, if this is to take place in the UK, it will be subject to the [Nuclear Installations Act 1965](#) (“the 1965 Act”), which has been regularly updated over the years. Each site on which nuclear reactor construction work is taking place will require a licence, to be granted by ONR under

[section 1 of the 1965 Act](#). The licence will also be subject to conditions under [section 4 of the 1965 Act](#) to ensure the safety of the facility on which the nuclear activity is taking place. Further guidance on the process of granting a site licence and applicable licence conditions can be found in [ONR's licence condition handbook](#).

1.12 Further information on the role of ONR is available at onr.org.uk.

2. Approvals and surveys

2.1 The nuclear reactor installation for a United Kingdom nuclear ship must be approved by the MCA before construction of the ship commences (see 3 in this MGN).

2.2 A safety assessment must also be prepared and approved by the MCA prior to construction, together with preliminary plans and a complete description of the quality assurance programme (see [regulation 7 of the 2022 Regulations](#) and sections [4](#) and [5](#) in this MGN).

2.3 Surveys of the ship must be carried out during the construction phase, and trial phase, mainly for quality assurance purposes but also to verify that the ship is built in conformity with the requirements of [the 2022 Regulations](#), which include the requirements of the Nuclear Code, and with any added recommendations. Surveys must be carried out in accordance with [regulation 20 of the 2022 Regulations](#), which incorporates the requirements of Chapter 8 of the Nuclear Code.

2.4 The ship must be subjected to a pre-operations testing, or, in other words, a pre-commissioning test programme ([regulation 20\(3\) of the 2022 Regulations](#)), which is a series of tests to be carried out during the trial phase and prior to the initial survey of the ship in accordance with paragraph 8.3 in the Nuclear Code, and which are required to assure mechanical completion and readiness for operating the ship.

2.5 When satisfied with the test results and the updated documentation provided on behalf of the ship, the MCA, or the delegated Certifying Authority, may authorise the commissioning of the nuclear ship and issue a Nuclear Passenger Ship Safety Certificate or a Nuclear Cargo Ship Safety Certificate, if satisfied at the date of the survey that the ship complies with the applicable requirements of [the 2022 Regulations](#). The certificate must be kept on board the ship and be ready for inspection at all times. As such, the approval takes into account the technical requirements in the Nuclear Code, and with special consideration of the technological advancement in nuclear power generation and nuclear safety.

2.6 The results of surveys and tests should be recorded and copies of all reports should be provided to the MCA and kept on board for examination by the authorities concerned.

2.7 The nuclear component of a nuclear-powered vessel should be surveyed during the operational phase as required by paragraphs 8.4 and 8.5 in Chapter 8 of the Nuclear Code, which supplement the periodical surveys required by Chapter I and Chapter VIII in the Annex to SOLAS (see [regulation 20\(7\) to \(9\) of the 2022 Regulations](#)). All surveys of nuclear ships are subject to the general requirements in paragraphs 8.1.6 to 8.1.8 in Chapter 8 of the Nuclear Code (see [regulation 20\(1\) of the 2022 Regulations](#)).

2.8 Continuous surveys can be undertaken in accordance with paragraph 8.4.3 of the Nuclear Code in place of the periodical surveys required by paragraphs 8.4.3.1 to 8.4.3.4 of the Code (surveys of the nuclear steam supply system and supporting hull structure), and this should be arranged with the MCA (see [regulation 20\(8\) of the 2022 Regulations](#)). Additional surveys will also have to be carried out where there are particular circumstances, such as an

accident involving the nuclear ship or during repair work (see [regulation 20\(9\) of the 2022 Regulations](#)).

2.9 When evaluating the proposal, the MCA may engage the experience and resources of Certifying Authorities (ROs), UK Departments or Agencies specialised in nuclear safety. The UK authorises Classification Societies to act as Recognised Organisations (ROs) for the survey and inspection of UK ships. Throughout the certification process, the MCA may authorise an RO with the expertise in nuclear powered ships to undertake statutory surveys, design appraisal, safety assessment appraisal and certification on its behalf.

3. Approval of reactor installation

3.1 The MCA should be approached in the early stages of the design of a nuclear ship with detailed information for the purposes of the approval of a reactor installation on board a UK nuclear-powered vessel (see [regulation 10 of the 2022 Regulations](#)).

3.2 The reactor installation should be designed having regard to the special conditions of service on board the nuclear ship both in normal and exceptional circumstances of navigation.

3.3 The design, construction and standards of inspection and assembly of the reactor installation of a UK nuclear-powered vessel must comply with the requirements [the 2022 Regulations](#), the Nuclear Code and be subject to the approval of the MCA in light of the limitations which will be imposed on surveys by the presence of radiation.

3.4 It should be noted that the Nuclear Code is based on pressurised light water type reactors. Other type of reactors will require special considerations and may be approved by the MCA on a case-by-case basis.

3.5 As explained in the introduction to this guidance note, where the construction of a nuclear reactor is taking place on land (separately to the construction of the ship itself), a nuclear site licence under [section 1 of the 1965 Act](#) will be required, and ONR should be approached for the purposes of obtaining the licence. The licence can only be granted to a company (see [section 3 of the 1965 Act](#)). The conditions to which the licence is subject are granted by ONR under [section 4 of the 1965 Act](#).

3.6 At the point that the reactor installation (or “nuclear reactor”) is installed in a “means of transport”, [the 1965 Act](#) ceases to apply (see [section 1\(1\)\(a\) of the Act](#)), and [the 2022 Regulations](#) become the principal regulatory regime for the nuclear ship, with the Secretary of State as the enforcing authority. [The 1965 Act](#) does not define a “means of transport”, but guidance on this can be found here: [General agreement between Ministry of Defence and Office for Nuclear Regulation for regulation of the Defence Nuclear Programme \(onr.org.uk\)](#).

3.7 It should be noted that although there is a separate regulatory regime for the construction of the reactor installation on land, the reactor installation must still comply with the requirements of [the 2022 Regulations](#) for the purposes of the approval of the reactor.

3.8 A nuclear site licence under [section 1 of the 1965 Act](#) may also be required where a nuclear ship undergoes out of water maintenance, repair, is being decommissioned (see also [section 10](#) in this MGN), or in the event of emergency (see [section 1 of the 1965 Act](#)).

3.9 However, if a design flaw becomes apparent and may affect the safety of the reactor at any stage, this must be notified to ONR for assessment of the potential safety implications.

4. Safety Assessment

4.1 The design team should engage with the MCA in the early stages of the design of a nuclear ship to agree the basis of the approval of the safety assessment of a UK nuclear-powered vessel.

4.2 Prior to construction, the safety assessment (along with the preliminary plans – see [section 2 in this MGN](#)) must be submitted to the MCA for review. The MCA may provide further recommendations if needed.

4.3 Construction must start only after the safety assessment has received the approval of the MCA and where a nuclear site licence has been granted by ONR (see [section 3.5 in this MGN](#)).

4.4 The safety assessment should contain sufficient information to enable the MCA to perform the evaluation. This should be submitted to the MCA for approval before the construction of a UK nuclear-powered ship.

4.5 The safety assessment and the voyage plan of a nuclear-powered ship must be notified to the MCA at least 12 months before the arrival of the ship in United Kingdom waters, including a United Kingdom port.

4.6 A UK nuclear ship should notify the safety assessment to the government of a visiting country before the arrival of the vessel in the port and should check the particular requirements of that country well in advance.

4.7 The basis of the safety assessment should be in line with the principle of risk acceptance and radiation safety in Chapter 1.4 and Chapter 6.1 of the Nuclear Code.

4.8 The safety assessment should be a systematic analysis of the safety of the nuclear ship as required by [the 2022 Regulations](#), with particular attention to the matters in Annex 3 of the Nuclear Code. This should cover the design, construction, operation and decommissioning of the ship and its nuclear power plant to provide assurance that there are no unreasonable radiation or other hazards, at sea or in port, to the crew, passengers or public, or to the waterways or food or water resources.

4.9 The safety assessment should include a complete description of the quality assurance programme (see [section 5 in this MGN](#)).

4.10 The safety assessment must be kept up to date, kept on board the nuclear ship and must always be readily available for examination by UK authorities acting on behalf of the Secretary of State (see [regulation 13\(2\) of the 2022 Regulations](#)). In the case of a United Kingdom nuclear ship, any updating of the safety assessment must be notified to the MCA as soon as practicable for approval.

5. Quality Assurance Programme

5.1 A nuclear-powered ship should be designed, constructed, tested, inspected, operated and decommissioned under a Quality Assurance Programme (QAP) (see [regulation 28 of the 2022 Regulations](#)).

5.2 At all stages in the ship's life cycle, there should be a single organisation responsible for the management and control of the overall QAP.

5.3 As a precondition to MCA approval for the construction of a nuclear ship, a QAP should be developed by the responsible organisation to the satisfaction of the MCA in line with the requirements of [the 2022 Regulations](#), the Nuclear Code and the commitments made in the safety assessment.

5.4 The establishment and implementation of the QAP in relation to the nuclear steam supply system and its interface with the rest of the vessel should follow the basic requirements outlined in appendix 5 to the Nuclear Code and in the IAEA Safety Series No.50-C-QA (as amended).

5.5 In the event of a change of responsible organisation, the transfer of responsibility should be made so as to prevent interference with the implementation of the QAP.

5.6 The basic responsibility for achieving quality in performing a particular task during the design, manufacturing, commissioning, operation and decommissioning of a nuclear ship, rests with those to whom the task is assigned and not with those seeking to ensure by means of verification that such quality has been achieved.

6. Operating Manual

6.1 A fully detailed operating manual should be prepared and continuously updated for the information and guidance of the operating personnel in their duties on all the matters relating to the operation of the nuclear power plant with a particular attention to safety (see [regulation 14 of the 2022 Regulations](#)).

6.2 A nuclear-powered vessel must keep on board a copy of the operating manual approved by the flag administration of the vessel.

7. Radiation Safety

7.1 The requirements for radiological protection and radioactive waste management are contained in [regulation 8\(f\)](#) (in relation to the design and construction of a nuclear ships) and [regulation 11](#) (in relation to the operation of a nuclear ship and the protection of persons) of [the 2022 Regulations](#). These provisions make cross-references to particular paragraphs in Chapter 6 of the Nuclear Code and should be consulted carefully.

7.2 Arrangements should be made for the prompt recording of information concerning the emergency or accidental release of radioactive substances in excess of recommended limits. This information must be provided immediately to anyone who may be impacted, such as crew, the owner or operator, the flag administration, the responsible organisation, and the authorities of any coastal state likely to be affected (see paragraphs 6.4.12 and 7.4.2 in the Nuclear Code).

7.3 Where a nuclear ship is at a fixed-point mooring or alongside a berth, and where there is work on the ship involving ionising radiation, [the Radiation \(Emergency Preparedness and Public Information\) Regulations 2019 \(SI 2019/703\)](#) (“REPPIR 2019”) apply in Great Britain; in Northern Ireland, [the Radiation \(Emergency Preparedness and Public Information\) \(Northern Ireland\) Regulations 2019 \(SI 2019/185\)](#) (“REPPIR NI 2019”) will apply. [REPPIR 2019](#) and [REPPIR NI 2019](#) are referred to here collectively as “REPPIR”. REPPIR will apply if there is work involving a radioactive substance containing more than the quantity specified in those Regulations. To decide if REPPIR applies, operators should identify the quantities of radionuclides or fissile material present and compare them with threshold quantities in

REPPIR (see Schedules 1 and 2 in both [REPPIR 2019](#) and [REPPIR NI 2019](#)). If the threshold amounts are exceeded, there may be the potential for a radiation emergency, and in which case, REPPIR will apply.

7.4 For nuclear ships to which the provisions of REPPIR apply, the following minimum requirements should be met prior to any work with ionising radiation being carried out for the first time. The references in brackets are to the relevant regulation number, which is the same number in both [REPPIR 2019](#) and [REPPIR NI 2019](#):

- .1 Hazard evaluation (regulation 4);
- .2 Consequences assessment (regulation 5);
- .3 Consequences report (regulation 7);
- .4 Operator's emergency plan (regulation 10);
- .5 Off-site emergency plan (regulation 11).

7.5 It should be noted that the above-mentioned list is for guidance only and it is the responsibility of the vessel owner/operator to ensure that the vessel fully complies with the applicable requirements of the most up to date version of REPPIR.

7.6 Information will be required prior to a nuclear ship docking/berthing, or before any activities related to construction/build in the United Kingdom, for the purposes of [the 2022 Regulations](#) and of REPPIR.

7.7 Where there is any overlap between the requirements of [the 2022 Regulations](#) and REPPIR in the circumstances described in paragraph 7.3, the requirements of REPPIR take precedence.

7.8 [The Ionising Radiations Regulations 2017 \(SI 2017/1075\)](#) will also apply to any practice and any work carried on in an atmosphere containing radon 222 gas at an annual average activity concentration in air exceeding 300 Bq m⁻³. [The Ionising Radiations Regulations](#) impose duties on employers to protect employees and other persons against ionising radiation arising from work with radioactive substances and other sources of ionising radiation. [The Regulations](#) also impose certain duties on employees. For further information, refer to ONR's summary: [Ionising Radiations Regulations 2017 - 'Graded Approach' \(onr.org.uk\)](#).

8. Manning and Training

8.1 The minimum number of crew members carried on a nuclear ship to operate the nuclear power plant, as well as their qualifications, must comply with the requirements of the Operating Manual (see [section 6 in this MGN](#)) approved by the MCA to ensure that the ship and its nuclear power plant can be safely operated and maintained.

8.2 The MCA acknowledge that the operation of the nuclear power plant on board a vessel requires special qualifications and training which are not currently addressed in the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW). Therefore, the approval of qualifications and training requirements will be considered on a case-by-case basis, taking into consideration the requirements of paragraph 7.6 in Chapter 7 of the Nuclear Code, and, where appropriate, any available training standard related to the specific nuclear technology under consideration.

8.3 The MCA may approve special training courses and training providers when further experience of nuclear-powered ships is acquired.

8.4 Personnel will have to complete a special training course and examination to the satisfaction of the MCA. The completion of such a course, and passing an appropriate examination, will be reflected in the certificate of qualification.

8.5 The master and qualified officers should hold certificates commensurate with their duties. They should have successfully completed a special training course approved by the MCA, the curriculum of which includes as a minimum:

- .1 the basic principles of nuclear energy and its application to ships;
- .2 the particulars of the structure and performance of a nuclear ship;
- .3 knowledge of the possible consequences of navigational accidents to the ship and to the environment;
- .4 basic principles of radiation hazards and radiological protection;
- .5 action to prevent or alleviate postulated emergency situations.

8.6 Engineer officers should successfully complete:

- .1 the principles of nuclear engineering and nuclear reactor theory;
- .2 a course in radiation physics, including radiological effects on health and the environment, principles of radiological protection and radiation monitoring;
- .3 design and operating principles of the nuclear steam supply system (NSSS), its monitoring, control and protection systems;
- .4 engineered radiation safety features of the ship and of the nuclear power plant (NPP);
- .5 particulars of the ship's hull structure;
- .6 detailed study of a NSSS of the type fitted on the ship for which the officer is being trained and study of the Safety Assessment (see [section 4 in this MGN](#)), Operating Manual (see [section 6 in this MGN](#)) and operating instructions for the NPP equipment;
- .7 practical training in start up, shutdown and control of the NSSS, in normal and simulated emergency conditions, including maintenance, checking and survey procedures;
- .8 principles for the safe operation of NPP including maintenance inspections, surveys, core refuelling and waste management;
- .9 study of national and international safety requirements applicable to nuclear ships and their NPP.

8.7 The certificate of qualification for engineer officers should record the completion of the special training course and the chief engineer and qualified engineer officers should hold

certificates commensurate with their duties and should be subject to retraining and re-examination for each type of NSSS they may be required to operate.

8.8 All NSSS operators should have successfully completed a special training course approved by the MCA and should hold an appropriate operator's certificate. The degree of detail of course content should be commensurate with the duties of the operator.

8.9 All members of the ship's crew required to undertake specific or general tasks in the event of a radiation accident, should be trained in radiation protection to a level commensurate with the duties they would be expected to perform. This training should be periodically updated and repeated at a frequency sufficient to ensure a continued awareness and understanding of the radiation protection requirements.

8.10 The personnel responsible for radiation protection should:

- .1 be trained in radiological protection and dosimetry to a level satisfactory to the MCA;
- .2 have successfully completed a detailed training course approved by the MCA and possess a qualification certificate indicating the types of NSSS and radiation protection equipment for which they have been trained;
- .3 a ship's doctor, if carried, or other medically trained crew member, should have received adequate training in treating the effects of radiation exposure.

8.11 Other crew members involved in the operation of the NPP should be given operation theoretical courses and practical training commensurate with their official duties in the operation of the NPP and their muster list duties, as well as instructions on the use of personal health protection equipment. This training may be given in a training centre or onboard ship by qualified engineer officers. The qualifications of the crew members referred to in this subsection should be to the satisfaction of the MCA.

8.12 Crew members not involved in the operation of the NPP should be acquainted with the established procedures for entering controlled areas of the ship and with their muster list duties. They should also be familiar with the measures necessary to ensure their personal protection in the event of accidents resulting in high radiation.

8.13 All persons on board, including non-crew members, should have received instruction on health physics and radiation protection procedures before entering the controlled areas of the ship.

8.14 The practical training in NSSS control should be carried out on special simulators, or on ship or land-based facilities having NPP installations of the type the trainee will operate. Trainees should, without assistance, perform a sufficient number of reactor start ups and shutdowns to demonstrate to the satisfaction of the MCA their competence to suitably control reactor operation under all PPCs.

8.15 Appropriate officers and NSSS operators should be regularly retrained, to update their qualifications in theory and in the safe operation of the NPP. The frequency and level of re-qualification training should be to the satisfaction of the MCA.

8.16 The qualifications and skills of crew members, in performing their assigned duties, should be exercised and improved by carrying out ship emergency and radiation alarm drills to the satisfaction of the MCA. The radiation alarm drills should simulate the probable damage and consequences of postulated accidents involving the NPP.

9. Ports

9.1 A nuclear-powered ship may be subject to special control before entering a UK port, and during the visit, to verify the presence on board of a valid nuclear ship safety certificate, and to ensure there are no unreasonable radiation or other hazards at sea or in port, to the crew, passengers or public, or to the waterways or food or water resources.

9.2 Duties of ports will be set out in a revised version of the Port Marine Safety Code and the Guide to Good Practice on Port Marine Operations, taking into consideration the safety of the port and emergency response before allowing the entry of a nuclear-powered ship.

9.3 The Port Marine Safety Code has been developed to improve safety in the port marine environment and to enable organisations to manage their marine operations to nationally agreed standards. It provides a measure by which organisations can be accountable for discharging their statutory powers and duties to run harbours or facilities safely and effectively. It also provides a standard against which the policies, procedures and performance of organisations can be measured.

9.4 Under [the 2022 Regulations](#), a foreign-flagged nuclear ship intending to visit a UK port must currently provide the port with a safety assessment 12 months before its arrival in UK waters (see [regulation 13\(3\) of the 2022 Regulations](#)).

9.5 For nuclear ships to which the provisions of REPPIR apply, see sections [7.3](#) and [7.4](#) in this MGN.

10. Decommissioning of nuclear-powered ships

10.1 A nuclear-powered ship will cease to be a nuclear ship when it is no longer powered, or capable of being powered, by the nuclear reactor. Prior to this point, the ship will need to be decommissioned as a nuclear ship.

10.2 For the purposes of the decommissioning, [regulation 29 of the 2022 Regulations](#) (decommissioning of a ship) applies, which requires that the decommissioning of a nuclear ship is undertaken in accordance with paragraph 1.8 of chapter 1 of the Nuclear Code.

10.3 Paragraph 1.8 of chapter 1 of the Nuclear Code requires safety measures to be put in place but is not prescriptive as to what these measures must be. It is expected that the physical decommissioning of the ship should take place in dry dock and decommissioning of the reactor may take place elsewhere.

10.4 As at this point the ship would no longer be fit for the purpose of navigation and therefore the reactor would not be comprised in “a means of transport”, the ship will become subject to [section 1 of the 1965 Act](#). The standard safety requirements relating to decommissioning for the purposes of a licence [section 1 of the 1965 Act](#) should be met and ONR should be approached for the purposes of obtaining the licence.

11. Offences and penalties

11.1 [The 2022 Regulations](#) contain provision for offences and penalties, many of which include the maximum penalty of a two year custodial sentence available under [the Merchant](#)

[Shipping Act 1995](#), but which may alternatively, or in addition, be subject to a fine. A table of the offences under [the 2022 Regulations](#) is [annexed to this MGN](#).

12. Control and detention

12.1 The MCA is an Executive Agency of the Department for Transport and has responsibility, on behalf of the Secretary of State, for the enforcement of UK merchant shipping legislation. The Secretary of State may authorise officers to inspect nuclear ships when in a United Kingdom port in order to verify:

- .1 the validity of a Nuclear Ship Safety Certificate, or an equivalent certificate where the ship flies the flag of a country which is not a Convention country;
- .2 that the ship and its equipment is properly maintained, examined, certified and manned in accordance with any conditions stated on the ship's certificate;
- .3 where applicable, compliance with the provisions of [regulation 23 of the 2022 Regulations](#) relating to the responsibilities of owner and master;
- .4 that there are no unreasonable radiation or other hazards at sea or in port, to the crew, passengers or public, or to the waterways or food or water resources.

12.2 Where a nuclear ship does not comply with the requirements of [the 2022 Regulations](#), including specified provision in Chapter I and Chapter VIII in the Annex to the Convention, or in the Nuclear Code applicable to that ship, it may be detained in the United Kingdom.

12.3 It should not, however, be anticipated that prosecution will automatically occur in every case. Much will depend upon the circumstances of each case and service of an improvement or prohibition notice under [the Merchant Shipping Act 1995](#), or detention of the vessel until deficiencies are rectified, may be all that is necessary to ensure that any deficiencies identified are corrected.

More information

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Please note that all addresses and telephone numbers are correct at time of publishing.

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Annex I Offences under the Merchant Shipping (Nuclear Ships) Regulations 2022

Offence	Regulation	Committed by	Penalty
Requirement for safety assessment	7(1)	owner and master of a nuclear ship in respect of each case of non-compliance	(a) on summary conviction— (i) in England and Wales by a fine; or (ii) in Scotland or Northern Ireland by a fine not exceeding the statutory maximum; or (b) on conviction on indictment by imprisonment for a term not exceeding two years, or a fine, or both. The custodial sentence of two years is the maximum custodial penalty available under the power in section 85(7)(b) of the Merchant Shipping Act 1995 and may be combined with a fine. These are the maximum penalties.
Design and construction of nuclear ships	8	owner and master of a nuclear ship in respect of each case of non-compliance	As above
Suitability of reactor installation for service on board a ship	9	owner and master of a nuclear ship in respect of each case of non-compliance	As above
Approval of reactor installation	10	owner and master	As above
Radiation safety	11	owner and master of a nuclear ship in respect of each case of non-compliance	As above
General operating requirements for nuclear ships	12 (in so far as this relates to a contravention of paragraph 7.1.1 or 7.1.4 in Chapter 8 of the Nuclear Code)	owner and master of a nuclear ship in respect of each case of non-compliance	As above
General operating requirements for nuclear ships	12 (in so far as this relates to a contravention of paragraph 7.1.3 in Chapter 7 of the Nuclear Code)	Company (usually the operator, which may be the owner or manager)	As above
Safety assessment – operational requirements	13(1)(a) or (b), (2)(a) or (b), or (5)	owner and master of a nuclear ship in respect of	As above

		each case of non-compliance	
Operating manual	14(1), (3)(a) or (b), (4) or (5)(a) or (b)	owner and master of a nuclear ship in respect of each case of non-compliance	As above
Additional operating documentation	15(1), (3)(a) or (b), (4), (5) or (6)	owner and master of a nuclear ship in respect of each case of non-compliance	As above
Emergency operation procedures	16	owner and master of a nuclear ship in respect of each case of non-compliance	As above
Maintenance and repair	17	owner and master of a nuclear ship in respect of each case of non-compliance	As above
Manning and training	18(1)	owner and master of a nuclear ship in respect of each case of non-compliance	As above
Surveys of United Kingdom nuclear ships	20(1)(a), (b) or (c), (2), (3), (4), (6), (7), (8), (9) or (11)(a), (b), (c) or (d)	owner and master of a nuclear ship in respect of each case of non-compliance	As above
Requirement to hold on board a nuclear ship safety certificate	21(3)	owner and master of a nuclear ship in respect of each case of non-compliance	As above
Responsibilities of owner and master	23(1)	owner and master of a nuclear ship in respect of each case of non-compliance	As above
Prohibition on proceeding to sea or on a voyage without the appropriate certificate	27	owner and master of a nuclear ship in respect of each case of non-compliance	As above
Quality assurance programme	28	owner and master of a nuclear ship in respect of each case of non-compliance.	As above
Decommissioning of nuclear ships	29	the master in respect of each case of non-compliance	As above
loss of a nuclear ship	30(a) or (b)	master	As above
failure to have safety assessment ready for examination	13(2)(c)	owner and master of a nuclear ship	on summary conviction– in England and Wales by a fine; or in Scotland or Northern Ireland by a fine not exceeding the statutory maximum; or

			on conviction on indictment by imprisonment for a term not exceeding six months, or a fine, or both.
failure to have operating manual ready for examination	14(5)(c)	owner and master of a nuclear ship	As above
failure to have additional operating documentation ready for examination	15(3)(c)	owner and master of a nuclear ship	As above
failure to have results of surveys and tests readily available for examination	20(11)(e)	owner and master of a nuclear ship	As above
failure to have nuclear ship safety certificate ready for examination	21(4)	owner and master of a nuclear ship	As above
falsification of certificate etc	25(3)	the person in question.	As above
providing training without approval etc.	18(13)(a), (b), (c) or (d)	Providing training without approval etc.	on summary conviction– in England and Wales by a fine; or in Scotland or Northern Ireland by a fine not exceeding the statutory maximum; or on conviction on indictment by a fine.