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# AUSTRALIAN NAVAL CLASSIFICATION AUTHORITY MANUAL (VOLUME 2)

## DIVISION 3: SHIP RULES

## CHAPTER 14: ENVIRONMENTAL PROTECTION

## PART 1: ANC RULES

This document is issued for use by Defence and Defence Industry personnel and is effective forthwith.

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CANBERRA ACT 2600
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2 https://www.legislation.gov.au/Series/C2004A04868

3 https://www.legislation.gov.au/Series/C2004A03712

4 http://drnet/AssociateSecretary/security/policy/Pages/dspf.aspx

# AUSTRALIAN NAVAL CLASSIFICATION RULES

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Division 3: Ship Rules
Part 1: ANC Rules

# Chapter 14: Environmental Protection

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# Australian Naval Classification Rules

## Rule 0. Goal

0.1 For the defined operating conditions, the ship and its environmental protection systems shall be designed, constructed, operated, and maintained so far as is reasonable and practicable, whilst not impairing the operations or operational capabilities of the ship, to prevent the pollution of the marine environment:

0.1.1 by the release of harmful substances, effluents,

0.1.2 and the transfer of harmful aquatic organisms and pathogens.

## Rule 1. General

**Functional Objective**

1.1 The purpose of this rule is to outline the principles and framework for Chapter 14 *Environmental Protection*.

**Scope**

1.2 The scope of this chapter is to describe the Goal, Functional Objectives and Performance Requirements for environmental protection systems installed on Ships.

1.3 Division 2, Chapter 01 *General Requirements* applies to all chapters of the ANC Rules, as applicable to the design, and therefore in order to meet the Chapter 14 goal, the requirements of both this chapter and Division 2, Chapter 01 *General Requirements* shall be met.

**Application**

1.4 Compliance with this chapter does not remove an NVO's obligation to meet legislative requirements beholden to the Ship.

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Notes:

1. The Rules do not remove the obligation to conduct legislated environmental impact assessments, but compliance with this chapter can be used as part of an NVO's response addressing environmental impact in the design, construction and continued maintenance of the ship.

2. Naval Vessels that operate as:

- Regulated Australian Vessels that operate under the Navigation Act 2012 are to comply with the relevant AMSA Marine Orders, or

- Domestic Commercial Vessels that operate under the Marine Safety (Domestic Commercial Vessel) National Law Act 2012, are to comply with the relevant AMSA Marine Orders.

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1.5 The NVO shall ensure that discharges from the Environmental Protection Systems are within national and or international limits for the area of operation.

**General Performance Requirements**

1.6 Environmental Protection Systems shall be provided for the operational role and environment for all foreseeable operations but excluding for the purpose of securing the safety of a ship or saving life at sea.

# Rule 2. Oil Pollution Prevention

**Functional Objective**

2.1 The Ship shall be designed, constructed, operated, and maintained to prevent the pollution of the marine environment by the discharge of oil.

**Performance Requirements**

2.2 The oil tank arrangements shall prevent and in the case of damage minimise the loss of stored oil. As a minimum:

2.2.1 Ballast Water shall be restricted from use in oil tanks:

2.2.2 For aggregate oil fuel capacity 600m3 and above, means shall be provided to protect oil fuel tanks other than small oil fuel tanks, cargo pump rooms and associated piping from a collision or grounding event; and

2.2.3 Ships with the Special Function of Bulk Fuel Carriage shall have sufficient subdivision, intact and damage stability.

2.3 Means shall be provided to prevent and minimise the loss of oil and containment of spills during its use and transfer.

2.4 The piping arrangements for the transfer of Oil and/ or Oily mixtures shall be in accordance with Chapter 04 *Engineering Systems*, Rule 6 *Pressure and Piping Systems*, Rule 26 *Fuel and Lube Oil Systems* and Rule 30 *Wastewater and Oily water transfer systems*, as applicable.

2.5 Means shall be provided to hold Oil residue (Sludge) and/or Slops:

2.5.1 with tank(s) of adequate capacity with a dedicated pumping arrangement;

2.5.2 with no discharge connections to the bilge system, oily bilge water holding tank(s), tank top or oily water separators;

2.5.3 with no piping that has direct connection overboard, other than the standard discharge connection;

2.5.4 to facilitate their cleaning and subsequent discharge of residues to reception facilities.

Note: Adequate capacity can be derived from Division 2 Chapter 01 *General Requirements* Rule 13 *Range and Endurance.*

2.6 Where retained onboard, means shall be provided to safely hold oily mixtures:

2.6.1 Storage of Oily mixtures are to be held in tank(s) of adequate capacity.

2.7 Oily mixtures shall be able to be discharged:

2.7.1 having been processed by the oil filtering equipment, and / or;.

2.7.2 via a Standard Discharge Connection.

2.8 Spaces where toxic and / or flammable gases from oily mixtures have the potential to be generated or accumulate shall comply with Division 2 Chapter 01 *General Requirements* Rule 7 *Hazardous Areas*.

2.9 Records shall be provided and maintained of oil movements, including:

2.9.1 An Oil Record Book; and

2.9.2 The Oil record Book shall be completed on each occasion when oil is loaded, transferred, and / or unloaded, oily residue is collected and disposed, and oily mixtures is discharged or disposed.

2.10 A plan in the event of an oil pollution incident shall be provided and maintained which shall include:

2.10.1 A ship specific Shipboard oil pollution emergency plan.

2.10.2 Ships with the Special Function of Bulk Fuel Carriage of 5,000 deadweight or above shall have prompt access to computerised, shore-based damage stability and residual structural strength calculation programs.

## Rule 3. Wastewater Pollution Prevention

**Functional Objective**

3.1 Ships shall be designed, constructed, operated, and maintained to prevent the pollution of the marine environment by the discharge of wastewater.

Note: Wastewater in these Rules includes both sewage and grey water.

**Performance Requirements**

3.2 Facilities to collect all wastewater shall be provided.

Note: Grey water that is mixed with sewage is considered Sewage.

3.3 Wastewater systems shall be designed considering the variable loads from operating cycles; full crew to reduced personnel, alongside and at sea.

3.4 Wastewater systems shall be of adequate capacity, taking into account the operation of the ship, the number of persons on board and other relevant factors, in accordance with the endurance requirements contained in Division 2 Chapter 01 *General Requirements* Rule 13 *Range and Endurance*.

3.5 The wastewater system shall be capable of safely holding wastewater prior to treatment or discharge.

3.6 The piping arrangements for the transfer of wastewater shall be in accordance with Chapter 04 *Engineering Systems*, Rule 6 *Pressure and Piping Systems* and Rule 30 *Wastewater and Oily water transfer systems*.

3.7 Spaces where toxic and / or flammable gases from wastewater mixtures have the potential to be generated or accumulate shall comply with Division 2 Chapter 01 *General Requirements* Rule 7 *Hazardous Areas*.

3.8 Wastewater should be treated prior to discharge to the sea or retained onboard to discharge at reception facilities.

3.9 Sewage shall be able to be discharged, as a minimum by:

3.9.1 having been treated by the sewage treatment plant, and the effluent shall not produce visible floating solids nor cause discoloration of the surrounding water; or

3.9.2 having been comminuted and disinfected; or

3.9.3 when untreated, at a moderate rate; or

3.9.4 a Standard Discharge Connection.

Note: Discharge into the sea of wastewater shall be in accordance with international and / or national legislation, and dependent on treatment of the effluent, location and ships speed.

3.10 Records shall be provided and maintained of wastewater movements:

3.10.1 A Wastewater Record Book; and

3.10.2 Records detailing discharges from the holding tank(s) are to include: the date, location and quantity of wastewater discharged from the holding tank(s) either ashore or at sea; rate of discharge of untreated grey water and / or comminuted and disinfected sewage; distance from land and ship's speed, when untreated grey water and / or comminuted and disinfected sewage is discharged to sea.

## Rule 4. Garbage Pollution Prevention

**Functional Objective**

4.1 Ships shall be designed, constructed, operated, and maintained to prevent the pollution of the marine environment by the discharge of garbage.

**Performance Requirements**

4.2 The Ship shall minimise taking onboard material that could become garbage.

4.3 Facilities shall be provided to collect and sort garbage into types to assist processing and disposal.

4.4 Facilities shall be provided to process garbage prior to discharge.

4.5 Means shall be provided to store garbage that cannot be disposed of onboard;

4.5.1 Shall be stored in a manner which avoids health and safety hazards.

4.5.2 Shall be provided with sufficient storage space and equipment, taking into account the operation of the ship, endurance, the number of persons on board and other relevant factors.

4.5.3 Putrescible elements of stored solid waste (e.g., food contaminated packaging) shall be stabilised or otherwise stored or treated to counter the putrefaction process.

4.5.4 Hazardous waste materials shall be retained in appropriately safe stowages.

4.5.5 Spaces where toxic and / or flammable gases from garbage have the potential to be generated or accumulate shall comply with Division 2 Chapter 01 *General Requirements* Rule 7 *Hazardous Areas*.

4.6 Garbage shall be able to be stowed in suitable facilities to prevent discharge into the sea.

4.7 Garbage shall be able to be discharged to port reception facilities.

Note: Discharge into the sea of garbage shall be in accordance with international and / or national legislation, and dependent on location of the Ship.

4.8 Documentation shall be provided and maintained, including:

4.8.1 Placards shall be displayed notifying the garbage discharge requirements;

4.8.2 A Garbage Management Plan detailing the procedures for minimising, collecting, storing, processing and disposing of garbage, including the use of the equipment on board;

4.8.3 A Garbage Record Book;

4.8.4 Entries in the garbage record book are to include Date and time of discharge, Port or facility, or name of the ship, Categories of garbage discharged, and Estimated amount discharged for each category in cubic metres.

4.8.5 Entries in the garbage record book shall be made when garbage is discharged to; a reception facility, or other ships, incinerated, or at sea.

## Rule 5. Emissions from Ozone Depleting Substances and Synthetic Greenhouse Gases

**Functional Objective**

5.1 Ships shall be designed, constructed, operated and maintained to prevent or, for existing vessels, minimise discharges of Ozone Depleting Substances (ODS) and / or Synthetic Greenhouse Gases (SGG) into the marine environment.

**Performance Requirements**

5.2 New installations shall not contain scheduled ODS and / or SGG.

Notes:

The list of Scheduled ODS and SGG are contained in Schedule 1 of Ozone Protection and Synthetic Greenhouse Gas Management Act 1989.

The following performance requirements do not apply to permanently sealed equipment where there are no charging connections or potentially removable components containing refrigerants and extinguishing agents.

5.3 Installed systems containing refrigerants and extinguishing agents shall minimise leakage, by providing:

5.3.1 Means to isolate the system to conduct maintenance, servicing or repair work without releasing the charge into the atmosphere;

5.3.2 Means to conduct periodic leak testing; and

5.3.3 A leak detection system appropriate to the media to monitor continuously the spaces into which the media could leak.

Note: Refer to Division 2, Chapter 01 *General Requirements*, Rule 7 *Hazardous Areas* regarding detection requirements for toxic gases.

5.4 Means shall be provided to be able to recover refrigerants and extinguishing agents from installed systems.

5.5 Documentation shall be provided and maintained, including:

5.5.1 Refrigerants and extinguishing agents management procedures, including adding and recovering charge, leak detection and the means adopted to control the loss and leakage of media;

5.5.2 A Refrigerants and extinguishing agents Log Book;

5.5.3 Quantity of media added to each system, leaks, including remedial actions, media recovered and storage location, media disposal including quantity and location, Details of personnel suitably experienced or with an applicable qualification for maintenance of the onboard refrigeration and fire extinguishing system(s), including relevant certification.

## Rule 6. Emissions from Marine Engines

**Functional Objective**

6.1 Ships shall be designed, constructed, operated and maintained to minimise the pollution of the marine environment by marine diesel engine emissions.

**Performance Requirements**

6.2 Marine Diesel Engines installed on Ships with a power output of more than 130 kW not used solely for emergency use shall;

6.2.1 Limit NOx emissions, and

6.2.2 Periodically verify that the NOx emission limits are maintained.

6.3 Sulphur content of oil fuel shall limit SOx emissions for the intended operating area.

6.4 Records shall be provided and maintained, including:

6.4.1 NOx Engine Parameters;

6.4.2 Fuel delivered onboard for ships use including a fuel sample; and

6.4.3 Where separate fuel is used in Emission Control Areas, procedures for change-over of fuel type when entering and leaving.

## Rule 7. Emissions from Shipboard Incinerators

**Functional Objective**

7.1 Ships shall be designed, constructed, operated and maintained to minimise the pollution of the marine environment by shipboard incinerators.

**Performance Requirements**

7.2 Shipboard incinerators shall limit emission of pollutants.

Note: MARPOL Annex VI Regulation 16.2 lists substances prohibited from being incinerated, national & local legislation may differ.

7.3 Shipboard incinerators and spaces containing incinerators shall address safety arrangements including fire protection, energy supply, ventilation supply and exhaust arrangements.

7.4 Documentation shall be provided for shipboard incinerators, including:

7.4.1 Warning & instructions plates, and

7.4.2 An operating manual.

7.5 Incinerator waste shall not be discharged (i.e. ash) at sea.

Note: Ships shall store and discharge ashore incinerator waste, and record incinerator use as required by Rule 4.

## Rule 8. Ship Energy Efficiency

**Functional Objective**

8.1 Ships shall be designed, constructed, operated and maintained to reduce carbon intensity.

**Performance Requirements**

8.2 The carbon intensity of operations shall be documented in a Ship Energy Efficiency Management Plan (SEEMP).

## Rule 9. Ballast Water Management

**Functional Objective**

9.1 Ships shall be designed, constructed, operated, and maintained to prevent the transfer of Harmful Aquatic Organisms and Pathogens into the marine environment from ballast water.

Note: Ships that are not designed or constructed to carry ballast water or have ballast water in permanently sealed tanks not able to be discharged at sea need not comply with this Rule.

**Performance Requirements**

9.2 The ballast water system shall be designed and constructed to minimize the uptake and undesirable entrapment of sediments, facilitate the removal of sediments, and provide safe access to allow for sediment removal and sampling.

9.3 Ballast water shall be able to be discharged, as a minimum:

9.3.1 after being treated by a ballast water treatment system, or

9.3.2 by transferring ashore to a ballast water reception facility, or

9.3.3 by an accepted alternate method.

Note: For example, the use of fresh potable water either from a municipal water supply or from an onboard desalination may be an acceptable alternate method.

9.4 Ballast tank sediment shall be able to be discharged.

9.5 Ballast water records and plans shall be provided and maintained, including:

9.5.1 A Ballast Water Management Plan detailing the procedures for managing, treating and disposing of ballast water and sediments; and

9.5.2 A Ballast Water Record Book.

9.5.3 Records shall be made when ballast water is taken on board, circulated or treated, is discharged at sea, discharged to a reception facility, or when accidentally taken up or discharged.

## Rule 10. Biofouling Management

**Functional Objective**

10.1 Ships shall be designed, constructed, operated and maintained to minimise the adverse impacts from biocides in the marine environment from ships' hulls.

10.2 Ships should be designed, constructed, operated and maintained to minimise the transfer of invasive aquatic species in the marine environment from ships' hulls.

**Performance Requirements**

10.3 The hull should be designed to minimise biofouling, with particular attention to niche areas and internal seawater cooling systems.

10.4 Anti-fouling systems containing harmful compounds shall not be applied or re-applied to the hull.

Note: Harmful compounds are listed in Annex 1 – Controls on Anti-fouling Systems, International Convention on the control of Harmful Anti-fouling Systems on Ships, 2001.

10.5 Anti-fouling systems shall be:

10.5.1 Selected considering the periods between dry-docking, ship speed, operating profile and environment; and

10.5.2 Applied, re-applied and repaired in accordance with procedures that consider surface preparation, sea chests and niche areas.

10.6 Documentation should be provided and maintained for the anti-fouling system including:

10.6.1 Procedures for in-water inspections of the anti-fouling system condition including niche areas and sea chests.

10.6.2 Procedures for in-water cleaning and maintenance of anti-fouling systems.

Note: Hull cleaning and maintenance activities will be determined by national and /or local legislation.

10.7 Biofouling records and plan should be provided and maintained, including:

10.7.1 A Biofouling Management Plan detailing niche areas, anti-fouling system selection, procedures for inspections, cleaning and maintenance; and

10.7.2 A Biofouling Record Book.

10.7.3 Records shall include the anti-fouling system applied, dates and location of dry-docking and in-water hull inspections.

## Rule 11. Ship Recycling

**Functional Objective**

11.1 Ships should prevent, reduce, minimize and, to the extent practicable, eliminate accidents, injuries and other adverse effects on human health and the environment caused by Ship Recycling, and enhance ship safety, protection of human health and the environment throughout a ship's operating life.

**Performance Requirements**

11.2 Means should be provided to prevent the use or installation of equipment containing prohibited substances.

Note: Prohibited substances are listed in Appendix 1 Controls of Hazardous Material, Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009. WHS Regulations, 5. Definitions.

11.3 Documentation on the hazardous materials contained in the ship should be provided and maintained, including:

11.3.1 An Inventory of Hazardous materials throughout the operational life of the ship, reflecting changes to the ship structure and equipment.

11.3.2 An Asbestos free declaration.

11.4 At the end of its operational life, a Ship Recycling Plan should be provided detailing the ship recycling facilities and ship-specific information on how the hazardous materials list in the inventory will be managed.

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