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**AUSTRALIAN NAVAL CLASSIFICATION AUTHORITY
MANUAL (VOLUME 2)**

DIVISION 5: REMOTE AND AUTONOMOUS SYSTEMS

SECTION 4: LARGE UNCREWED SURFACE VESSELS

CHAPTER 14: ENVIRONMENTAL PROTECTION

PART 1: ANC RULES



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

A handwritten signature in black ink, appearing to read 'CN Dagg'.

CN Dagg, CSC
Assistant Secretary
Australian Naval Classification Authority
Department of Defence
CANBERRA ACT 2600
May 2024 Edition

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ANCA Manual (Volume 2)

Division 5: Remote and Autonomous Systems, Section 4: Large Uncrewed Surface Vessels, Chapter 14: Environmental Protection, Part 1: ANC Rules, May 2024 Edition

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¹ <https://www.legislation.gov.au/Series/C1968A00063>

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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⁵ <https://www.defence.gov.au/business-industry/industry-governance/australian-naval-classification-authority/australian-naval-classification-rules>

AMENDMENTS

Proposals for amendments to the ANCA Manual (Volume 2) may be sent to:

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Division 5: Remote and Autonomous Systems (RAS) Rules
Section 4: Large Uncrewed Surface Vessel (L-USV)
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Chapter 14: Environmental Protection

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Australian Naval Classification Rules

Rule 0. Goal

- 0.1 For the defined operating conditions, the Large Uncrewed Surface Vessel (L-USV) 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 L-USV, to prevent the pollution of the marine environment:
- 0.1.1 by the release of harmful substances and effluents; and
- 0.1.2 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 L-USV.
- 1.3 Division 2 *General Requirements* Chapter 01 *Core Design Rules* applies to all chapters of the ANC Rules, as applicable to the design, and therefore in order to meet the Chapter 14 *Environmental Protection* goal, the requirements of both this chapter and Division 2 *General Requirements* Chapter 01 *Core Design Rules* shall be met.
- 1.4 Division 3 *Ship Rules* Chapter 14 *Environmental Protection* goal applies to all Naval Vessels greater than 24 m length overall that carry persons. Therefore, to meet the Chapter 14 *Environmental Protection* goal, a L-USV that requires embarked persons shall meet the requirements of both this chapter and the requirements of Division 3 *Ship Rules* as applicable to the design.
- 1.4.1 The Rules listed in this Chapter are based on those in the corresponding Chapter within Division 3 *Ship Rules* and have been adapted for L-USV. When referring to Division 2 or 3, the following terms may be interchanged:
- 1.4.1.1 'Ship' as 'L-USV';
- 1.4.1.2 'Crew' or 'Operator' or 'Embarked Person' as 'End User';
- 1.4.1.3 'Primary, 'Main' or 'Damage Control Station' as 'Remote Command Unit (RCU)';
- 1.4.1.4 'Bridge' or 'conning position' as RCU; and
- 1.4.1.5 'Signature Reduction' as 'Signature Management'.
- 1.5 The Environmental Protection arrangements of the L-USV shall match its RAS Maturity Level to allow End Users to safely operate the L-USV to achieve missions listed in the Operating and Support Intent (OSI).

Application

- 1.6 Chapter 14 *Environmental Protection* is written in a goal-based format which specifies high level objectives and relies upon verification against an agreed standard for compliance.
- 1.7 Compliance with this chapter does not remove an NVO's obligation to meet legislative requirements beholden to the L-USV.

Notes:

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

Naval Vessels which operate as Regulated Australian Vessels under the Navigation Act 2012 are to comply with the relevant AMSA Marine Orders.

Performance Requirements

- 1.8 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

- 2.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 14 *Environmental Protection* Rule 2 *Oil Pollution Prevention*.

Rule 3. Not Used

Rule 4. Not Used

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

- 5.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 14 *Environmental Protection* Rule 5 *Emissions from Ozone Depleting Substances and Synthetic Greenhouse Gases*.

Rule 6. Emissions from Marine Engines

- 6.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 14 *Environmental Protection* Rule 6 *Emissions from Marine Engines*.

Rule 7. Not Used

Rule 8. Ship Energy Efficiency

- 8.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 14 *Environmental Protection* Rule 8 *Ship Energy Efficiency*.

Rule 9. Ballast Water Management

- 9.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 14 *Environmental Protection* Rule 9 *Ballast Water Management*.

Rule 10. Biofouling Management

- 10.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 14 *Environmental Protection* Rule 10 *Biofouling Management*.

Rule 11. Ship Recycling

- 11.1 The L-USV shall comply with Division 3 *Ship Rules* Chapter 14 *Environmental Protection* Rule 11 *Ship Recycling*.

Rule 12. Remote Monitoring

Functional Objective

- 12.1 The L-USV shall have Remote Monitoring capabilities to ensure the protection of the environment.

Scope

- 12.2 This rule is applicable for L-USV with a Remote Monitoring level of RM1 or greater.

Performance Requirements

- 12.3 L-USV with a Remote Monitoring level of RM1 or greater shall be able to monitor the status of systems with potential to impact the environment and alert the End Users of the systems' status.
- 12.4 L-USV with a Remote Monitoring level of RM2 or greater shall be able to monitor the status of sub-systems with potential to impact the environment and alert the End Users of the systems' status.
- 12.5 L-USV with a Remote Monitoring level of RM3 or greater shall be able to monitor the status of individual equipment that has potential to impact the environment and alert the End Users of the systems' status.
- 12.6 L-USV with a Remote Monitoring level of RM4 shall be able to monitor the complete status of all systems with potential to impact the environment and alert the End Users of the systems' status.

Rule 13. Remote Control

Functional Objective

- 13.1 The L-USV shall have Remote Control capabilities to ensure the protection of the environment.

Scope

- 13.2 This rule is applicable for L-USV with a Remote Control level of RC1 or greater.

Performance Requirements

- 13.3 L-USV with a Remote Control level of RC1 or greater shall have emergency control over the status of critical systems with potential to impact the environment and alert the End Users of the systems' status.
- 13.4 L-USV with a Remote Control level of RC2 or greater shall have limited control over the status of systems with potential to impact the environment and alert the End Users of the systems' status.
- 13.5 L-USV with a Remote Control level of RC3 or greater shall have comprehensive control over individual equipment that has potential to impact the environment and alert the End Users of the systems' status.
- 13.6 L-USV with a Remote Control level of RC4 shall have complete control over all systems with potential to impact the environment and alert the End Users of the systems' status.

Rule 14. Autonomy

Functional Objective

- 14.1 The L-USV shall have Autonomy capabilities to ensure the protection of the environment.

Scope

- 14.2 This rule is applicable for L-USV with an Autonomy level of A1 or greater.

Performance Requirements

- 14.3 L-USV with an Autonomy level of A1 or greater shall automatically monitor and control critical systems with potential to impact the environment and alert the End Users of the systems' status.
- 14.4 L-USV with an Autonomy level of A2 or greater shall automatically monitor and control a limited number of systems with potential to impact the environment and alert the End Users of the systems' status.
- 14.5 L-USV with an Autonomy level of A3 or greater shall automatically monitor and control all equipment that has potential to impact the environment and alert the End Users of the systems' status.