



Australian Government
Australian Maritime Safety Authority

Marine Order 43 (Cargo and cargo handling — livestock) 2018

made under the *Navigation Act 2012*

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Section 1**Division 1 Preliminary****1 Name of Order**

This Order is *Marine Order 43 (Cargo and cargo handling — livestock) 2018*.

2 Purpose

This Order provides for the certification of vessels that carry livestock and specifies requirements for the carriage and stowage of livestock to ensure the safe operation of vessels.

3 Power

- (1) The following provisions of the Navigation Act provide for this Order to be made:
 - (a) subsection 98(3) which provides that the regulations may provide that vessels included in a particular class are required to have safety certificates of specified kinds;
 - (b) subsection 112(4) which provides that the regulations may provide for the carriage on a vessel of cargo and livestock;
 - (c) subsection 112(5) which provides that the regulations may provide for the loading, unloading or carriage of livestock and for the giving of notices about those things;
 - (d) subsections 314 (1) and (3) which provide that the regulations may provide for matters about certificates;
 - (e) paragraph 339(2)(a) which provides that the regulations may provide for the design and construction of vessels;
 - (f) paragraph 339(2)(i) which provides that the regulations may provide for maintenance, testing, survey and certification of vessels;
 - (g) subsection 341(1) which provides for the imposition of penalties for a contravention of a provision of the regulations.
- (2) Subsection 339(1) of the Navigation Act provides for regulations to be made prescribing matters required or permitted to be prescribed, or that are necessary or convenient to be prescribed, for carrying out or giving effect to the Act.
- (3) Subsection 342(1) of the Navigation Act provides that AMSA may make a Marine Order about matters that can be provided for by regulation.

4 Definitions

In this Order:

ACCL (or ***Australian certificate for the carriage of livestock***) means an Australian certificate for the carriage of livestock issued under section 26 of this Order or section 100 of the Navigation Act, including the record of equipment and arrangements for the vessel.

arrangements for the carriage of livestock means anything required for the provision of livestock services on a vessel.

ASEL means the *Australian Standards for the Export of Livestock* mentioned in section 3 of the *Australian Meat and Live-stock Industry (Standards) Order 2005*.

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classification society has the same meaning as in *Marine Order 31 (SOLAS and non-SOLAS certification) 2019*.

fodder tank means a space or day tank with a holding capacity of at least 39m³ designed for carrying fodder.

fresh water generator includes a reverse osmosis water plant.

IMSBC Code means the *International Maritime Solid Bulk Cargoes Code*, adopted by IMO Resolution MSC.268(85), as in force from time to time.

interim ACCL means an interim ACCL issued under section 26, including the record of equipment and arrangements for the vessel.

IS Code means the *International Code on Intact Stability, 2008 (2008 IS Code)* adopted by IMO Resolution MSC.267(85), as in force from time to time.

ISM Code means the *International Safety Management (ISM) Code* as defined in Regulation 1 of Chapter IX of SOLAS, as in force from time to time.

livestock operator means the person with overall general control and management of the livestock operation for which an ACCL is applied for or issued for a vessel.

livestock services means any of the following:

- (a) ventilation;
- (b) fresh water supplies;
- (c) fodder supplies;
- (d) lighting;
- (e) drainage;
- (f) availability of humane killing device.

portable equipment includes boxes, platforms, containers, portable livestock units or any portable or temporary arrangement that forms a pen or stall for the carriage of livestock, but does not include the following transport units if livestock is carried in accordance with the laws of the State or Territory of the port from which the livestock is shipped:

- (a) a registered road vehicle;
- (b) a registered trailer or float;
- (c) a portable stock crate mounted on a registered road vehicle;
- (d) any other transport unit that is approved by AMSA.

record of equipment and arrangements means the Record of Equipment and Arrangements attached to and forming part of the ACCL.

short voyage means a voyage that is not expected to exceed 24 hours.

uppermost continuous deck means the uppermost complete deck of a vessel that:

- (a) is exposed to the weather and sea; and
- (b) is fitted as an integral part of the vessel's structure; and
- (c) has all openings in weather positions fitted with permanent means of closing.

Note 1 Information on obtaining copies of any IMO Resolution, IMO document or other document that is mentioned in this Order is available from the AMSA website Marine Orders link at <http://www.amsa.gov.au>.

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Note 2 Some terms used in this Order are defined in *Marine Order 1 (Administration) 2013*, including:

- IMO
- MARPOL
- SOLAS

Note 3 Other terms used in this Order are defined in the Navigation Act, including:

- AMSA
- dangerous goods
- foreign vessel
- inspector
- owner
- regulated Australian vessel
- safety certificate.

Note 4 For delegation of AMSA's powers under this Order — see the AMSA website Marine Orders link at <http://www.amsa.gov.au>.

Note 5 Approved forms are available on AMSA's website: <http://www.amsa.gov.au>.

5 Interpretation

- (1) For this Order, a vessel is taken to have been constructed when:
 - (a) the keel is laid; or
 - (b) construction identifiable with the vessel starts and the lesser of at least 50 tonnes, or 1% of the estimated mass of all structural material of the vessel, is assembled.
- (2) In this Order, a reference to the date on which a vessel was converted means the date when the conversion started.
- (3) If any of the following provisions of this Order is inconsistent with the ASEL or an order made under section 17 of the *Australian Meat and Live-stock Industry Act 1997* (the *AMLI Act*), a vessel is taken to comply, and a person is taken to comply, with the provision if the vessel or person complies with the ASEL or section 17 of the AMLI Act:
 - (a) section 36;
 - (b) section 37;
 - (c) subdivision 11.1, only as it relates to pigs and goats;
 - (d) subdivision 11.5.

6 Application

- (1) This Order applies to:
 - (a) a regulated Australian vessel:
 - (i) on which it is intended to load livestock; or
 - (ii) that is loading or unloading livestock; or
 - (iii) that has on board or is carrying livestock between any ports; and
 - (b) a foreign vessel:
 - (i) on which it is intended to load livestock at a port in Australia; or
 - (ii) that is loading livestock at a port in Australia; or
 - (iii) that has on board livestock loaded at a port in Australia.

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- (2) However, for a vessel that is preparing to load, or is loading or carrying livestock on a short voyage, the following provisions of this Order do not apply:
- (a) Divisions 5, 8 and 12;
 - (b) sections 35, 51 and 52;
 - (c) the carriage requirements for pigs and goats mentioned in subdivision 11.1;
 - (d) the carriage requirements for other species mentioned in subdivision 11.5.

Note The requirements for pens and passageways for sheep, cattle and horses set out in subdivisions 11.1, 11.2 and 11.3 apply on a short voyage.

- (3) This Order applies to any livestock used for commercial purposes.

Examples

sheep, cattle (including buffalo), horses (including donkeys and mules), goats, pigs, camels.

Note Cattle includes buffalo. However, for notification and reporting purposes under this Order, buffalo is notified and reported separately.

7 Review of decisions

A decision under subsection 17(2), 35(3), 59(7), 63(8), 72(2), 74(3), 75(4), 77(2) or 87(3), is taken to be a reviewable decision for section 17 of *Marine Order 1 (Administration) 2013*.

Note 1 Section 17 of *Marine Order 1 (Administration) 2013* provides for internal review of decisions that are made in accordance with the application process in that Order, such as an application for an ACCL by a foreign vessel under Division 3 of this Order. A person affected by the review of a decision under section 17 of *Marine Order 1 (Administration) 2013* may apply to the Administrative Appeals Tribunal for review (section 18 of *Marine Order 1 (Administration) 2013*).

Note 2 Subsection 313(1) of the Navigation Act provides for review by the Administrative Appeals Tribunal of decisions under sections 100, 101 and 102 of the Act relating to safety certificates.

8 Savings

Anything that was in force on 30 June 2018 under *Marine Order 43 (Cargo and cargo handling — livestock) 2006* has effect as if it were made under this Order.

Division 2 Loading

9 Notice of intention to load livestock

- (1) The master of a vessel must give AMSA notice in the approved form of the intention to load livestock onto the vessel.

Note The approved form is available from the AMSA website at <http://www.amsa.gov.au>.

- (2) The notice must be given to the AMSA office nearest to the port of loading at least 72 hours before the vessel commences loading.

10 Pre-loading inspection

- (1) The master of a vessel may allow livestock to be loaded onto the vessel only if:
- (a) AMSA has carried out a pre-loading inspection and notified the master that he or she may commence loading; or
 - (b) subsection (2) applies.
- Penalty: 50 penalty units.
- (2) A pre-loading inspection of a vessel is not required if:
- (a) the vessel is undertaking a voyage of less than 10 days; and

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- (b) the species intended to be loaded is:
 - (i) cattle; or
 - (ii) a combination of cattle and either sheep or pigs in accordance with subsection (3); and
 - (c) notice has been given to AMSA in accordance with section 9; and
 - (d) a pre-loading inspection, to the satisfaction of AMSA, has been carried out within 60 days before the intended loading; and
 - (e) AMSA considers that a further pre-loading inspection is not required.
- (3) For subparagraph (2)(b)(ii):
- (a) the record of equipment and arrangements must show that the vessel is approved by AMSA for all species of livestock to be carried; and
 - (b) the maximum area for species other than cattle must be the lesser of:
 - (i) 400 m²; or
 - (ii) 25% of the net pen area mentioned in the record of equipment and arrangements.
- (4) An offence against subsection (1) is a strict liability offence.
- (5) A person is liable to a civil penalty if the person contravenes subsection (1).
Civil penalty: 50 penalty units.

11 Stability

- (1) Before the commencement of loading, the master of a vessel must ensure that the vessel has the ability to comply, at all stages of the voyage and loading of the vessel, with the stability criteria in the IS Code and in Schedule 1.
Penalty: 50 penalty units.
- (2) An offence against subsection (1) is a strict liability offence.
- (3) A person is liable to a civil penalty if the person contravenes subsection (1).
Civil penalty: 50 penalty units.

12 Livestock carriage to be in accordance with ACCL

- (1) At any time when there is 1 or more livestock on board a vessel, the master of the vessel must ensure that:
- (a) livestock structures and livestock equipment set out in the ACCL for the vessel are in position and in a condition that makes them suitable for their purpose; and
 - (b) arrangements for the carriage of livestock set out in the ACCL for the vessel are in place; and
 - (c) livestock is contained and carried on board in accordance with the ACCL for the vessel.
- Penalty: 50 penalty units.
- (2) An offence against subsection (1) is a strict liability offence
- (3) A person is liable to a civil penalty if the person contravenes subsection (1).
Civil penalty: 50 penalty units.

Division 3 Vessel operations

13 Information on livestock loaded onto vessel

- (1) The master of a vessel may take a vessel loaded with livestock to sea only if he or she has provided to AMSA details of the number, weight and kind of livestock loaded onto the vessel.

Penalty: 50 penalty units.

Note The number of animals loaded onto the vessel that is provided to and accepted by the master as accurate, is referred to in the industry as the **actual number**.

- (2) A person who provides to the master of a vessel details of the number, weight and kind of livestock loaded onto the vessel must ensure that the details are accurate.

Penalty: 50 penalty units.

- (3) An offence against subsection (1) or (2) is a strict liability offence.

- (4) A person is liable to a civil penalty if the person contravenes subsection (1) or (2).

Civil penalty: 50 penalty units.

14 Severe weather conditions — minimising risk to livestock

- (1) If there is a reasonable likelihood that a vessel will experience severe weather conditions on the route of a proposed voyage, the master must:

(a) delay loading; or

(b) use an alternative route that:

(i) complies with section 9 of *Marine Order 27 (Safety of navigation and radio equipment) 2016*; and

(ii) reduces the risk of injury or mortality for livestock.

Penalty: 50 penalty units.

- (2) An offence against subsection (1) is a strict liability offence.

- (3) A person is liable to a civil penalty if the person contravenes subsection (1).

Civil penalty: 50 penalty units.

15 Maintenance of equipment and arrangements for the carriage of livestock while at sea

- (1) The master of a vessel must ensure that the equipment and arrangements for the carriage of livestock set out in the vessel's record of equipment and arrangements are maintained throughout the voyage in serviceable condition.

Penalty: 50 penalty units.

- (2) An offence against subsection (1) is a strict liability offence.

- (3) A person is liable to a civil penalty if the person contravenes subsection (1).

Civil penalty: 50 penalty units.

16 Alterations during the voyage

- (1) A person must not make any alteration during the voyage to livestock structures, livestock equipment or arrangements for the carriage of livestock without the express authorisation of the master.

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Penalty: 50 penalty units.

- (2) An offence against subsection (1) is a strict liability offence.
- (3) A person is liable to a civil penalty if the person contravenes subsection (1).

Civil penalty: 50 penalty units.

17 Proper precautions

- (1) This section applies if AMSA believes, on reasonable grounds, that the doing of an activity or the failure to do an activity during the loading or unloading, stowage or carriage of livestock on a vessel, may:
 - (a) damage the vessel; or
 - (b) pose a risk to the safety of persons or the proper carriage of livestock; or
 - (c) damage the environment.
- (2) AMSA may give a written notice to a person requiring:
 - (a) that the doing of an activity is to cease; or
 - (b) that precautions specified in the notice are to be undertaken.
- (3) A person who is given a notice must ensure that the notice is complied with to the extent that it relates to any matter over which the person has control.

Note 1 Section 114 of the Navigation Act provides that a person commits an offence if proper precautions are not taken for an activity involving packing, sending, stowing, loading, unloading, securing or carrying cargo on a vessel.

Note 2 Section 264 of the Navigation Act provides that an inspector may give directions to a person to take steps that are reasonable in the circumstances for compliance with a requirement in the Act or this Order. Section 267 of the Navigation Act also provides that an inspector may give a prohibition notice to the responsible person of a vessel about an activity involving a serious risk to the health or safety of a person.

Division 4 Restrictions on carriage of livestock**18 Livestock to be contained**

Livestock on a vessel must be contained in:

- (a) pens or stalls; or
- (b) portable equipment approved under section 77; or
- (c) a transport unit mentioned in subsection 80(1).

19 Carriage of livestock and vessel operations

- (1) On a vessel, livestock, livestock structures, livestock equipment and arrangements for the carriage of livestock must not:
 - (a) obstruct access to:
 - (i) an accommodation space; or
 - (ii) a working space necessary for the safe operation of the vessel; or
 - (iii) the means of egress from a hold or underdeck space; or
 - (b) interfere with:
 - (i) life-saving or fire-fighting appliances or equipment; or
 - (ii) sounding of tanks or bilges; or
 - (iii) operation of closing appliances; or
 - (iv) operation of freeing ports; or

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- (v) lighting or ventilation of other parts of the vessel; or
 - (vi) safe and efficient navigation of the vessel.
- (2) If the casing or bulkhead of any engine room, boiler room or heated fuel tank forms the boundary of a space in which livestock is to be carried, measures must be taken to ensure that there is no significant rise in temperature above the ambient temperature of the livestock space.

Example of a significant rise

If the ambient temperature is expected to be more than 22°C, an increase of 3°C would be considered significant.

Note Adequate measures may include insulation of the bulkhead or other boundary of the space.

- (3) Livestock may be carried over a hatchway only if the hatchway is protected from damage and the hatchway covers are secured to prevent movement.

20 Dangerous goods on vessel

If dangerous goods are on a vessel, livestock must not be held:

- (a) within 6 m horizontally of the dangerous goods; or
- (b) in the same underdeck compartment as the dangerous goods; or
- (c) in any position where they could be affected by spillage or leakage of the goods.

21 Carrying livestock in more than 1 tier

- (1) On a vessel, livestock must not be carried on more than 1 tier.
- (2) However, for a vessel constructed, or converted, for the carriage of livestock before 1 July 2018, livestock may be carried on more than 1 tier:
 - (a) until 31 December 2019; and
 - (b) only if the livestock is sheep, pigs or goats.

22 Livestock structures, connections and equipment — construction and maintenance

- (1) Any structure, connection to the vessel or equipment that is for the carriage of livestock must be constructed and maintained to at least the standard that applies to comparable structures, connections to the vessel and equipment surveyed by the vessel's classification society.
- (2) Livestock structures must be manufactured, assembled and positioned to protect livestock from injury, avoidable suffering and exposure to weather and sea.
- (3) Livestock structures, including livestock decks and containment structures, but not including arrangements for the carriage of livestock, must be constructed of non-combustible materials.
- (4) The expression *non-combustible material* has the same meaning as in Regulation 3 of Chapter II-2 of SOLAS.

Division 5 Australian certificate for the carriage of livestock**23 Certificate required**

- (1) A vessel that is permanently equipped for the carriage of livestock, must have an ACCL or an interim ACCL.

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- (2) For a regulated Australian vessel, an ACCL and an interim ACCL are safety certificates.

Note 1 It is an offence under sections 103 and 104 of the Navigation Act if a regulated Australian vessel is taken to sea without a safety certificate of a specified kind in force for the vessel.

Note 2 It is an offence under sections 106 and 107 of the Navigation Act if a foreign vessel is taken to sea without a certificate of a specified kind in force for the vessel.

24 Applying for ACCL

- (1) A person may apply to AMSA for an ACCL for a foreign vessel.
- (2) Division 3 of *Marine Order 1 (Administration) 2013*:
- (a) applies to an application under subsection (1); and
 - (b) other than section 17, applies to an application for an ACCL for a regulated Australian vessel in accordance with subsection 99(2) of the Navigation Act.

Note 1 Subsection 99(2) of the Navigation Act provides for the making of regulations for an application for a safety certificate for a regulated Australian vessel.

- (3) An application for an ACCL must be in the approved form.

25 Prohibition on issue of ACCL

- (1) An ACCL will be issued for a vessel only if:
- (a) the vessel is classed by a classification society that is a full member of the International Association of Classification Societies (IACS); and
 - (b) the vessel at least meets the requirements of SOLAS that apply to a vessel constructed after 30 September 1994.
- (2) However, for a vessel constructed or converted for the carriage of livestock before 1 October 1994, for a five year period after 1 July 2018, the vessel may meet the standards that apply to a vessel constructed after 31 August 1984 instead of complying with paragraph (1)(b), if:
- (a) an ACCL has been previously issued for the vessel; and
 - (b) the livestock operator has not changed since the ACCL was issued; and
 - (c) the vessel met the criteria set out in subsection 26(3) at the time the ACCL ceased to be in force or within 3 months of that date.

26 Criteria for issue

- (1) AMSA may issue an ACCL for a foreign vessel if satisfied that the criteria mentioned in subsection (3) are met.
- (2) For paragraph 100(1)(b) of the Navigation Act, the criteria mentioned in subsection (3) are the criteria for the issue of an ACCL for a regulated Australian vessel.
- (3) The criteria are that:
- (a) an application has been made in accordance with section 24; and
 - (b) the vessel meets the criteria mentioned in section 25; and
 - (c) for a regulated Australian vessel — the vessel has any certificate or other document that it is required to have under the Navigation Act; and

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- (d) for a foreign vessel — the vessel has any SOLAS certificate that it is required to have by the administration of the country in which it is registered; and
 - (e) the vessel has been surveyed for an ACCL and the survey shows that:
 - (i) the vessel's livestock structures, livestock equipment and arrangements for the carriage of livestock comply with this Order for the species to be carried; and
 - (ii) for bridge visibility — the vessel complies with, or, if it was constructed, or converted, for the carriage of livestock before 1 July 2000, substantially complies with, Regulation 22 of Chapter V of SOLAS; and
 - (iii) for fire protection, fire detection and fire extinction — the vessel complies with:
 - (A) at least the requirements set out in Chapter II-2 of SOLAS that apply to a vessel constructed after 30 September 1994; or
 - (B) for a five year period after 1 July 2018 — at least the requirements set out in Chapter II-2 of SOLAS that apply to a vessel constructed after 31 August 1984, and, after the end of that 5 year period — the requirements mentioned in subparagraph (A); and
 - (f) there is a documented maintenance program for the vessel's livestock structures, livestock equipment and arrangements for the carriage of livestock.
- (4) AMSA may issue an interim ACCL for a foreign vessel if satisfied that the criteria mentioned in subsection (6) are met.
 - (5) For paragraph 100(1)(b) of the Navigation Act, the criteria mentioned in subsection (6) are the criteria for the issue of an interim ACCL for a regulated Australian vessel.
 - (6) The criteria are that:
 - (a) an ACCL cannot be issued in time for the vessel to load; and
 - (b) the requirements of subsection (3) are met.

27 Conditions

- (1) An ACCL is subject to the following conditions:
 - (a) the vessel must continue to meet each requirement mentioned in:
 - (i) section 25; and
 - (ii) for a regulated Australian vessel — paragraph 26(3)(c); and
 - (iii) for a foreign vessel — paragraph 26(3)(d); and
 - (iv) subparagraphs 26(3)(e)(i), (ii) and (iii) and paragraph 26(3)(f);
 - (b) the vessel's ACCL must be endorsed in accordance with section 30;
 - (c) no substantial change may be made, without the approval of AMSA, to the vessel's livestock structures;
 - (d) any alternative arrangement approved by AMSA under subsection 35(3) does not contravene SOLAS;
 - (e) the vessel, its equipment and the arrangements for the carriage of livestock must continue to comply with this Order.

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- (2) For paragraph (1)(c), **substantial change** means:
 - (a) a change that affects more than 50% of the total pen area; or
 - (b) a change that increases the total pen area by more than 10%.
- (3) An interim ACCL is subject to the conditions mentioned in paragraph (1)(a).

28 Duration of ACCL

- (1) An ACCL comes into force on the day it is issued and ceases to be in force:
 - (a) after 5 years; or
 - (b) an earlier date specified in the ACCL.

Note The expiry date of the certificate would normally be aligned with the expiry date of the vessel's Cargo Ship Safety Construction Certificate so that annual surveys for both certificates can be conducted at the same time.

- (2) For a foreign vessel, an ACCL also ceases to be in force if any of the following occurs:
 - (a) a condition of the certificate has been breached;
 - (b) the livestock operator of the vessel changes;
 - (c) the vessel is sold or scrapped;
 - (d) the vessel changes flag;
 - (e) the vessel's classification society changes.

29 Duration of interim ACCL

- (1) An interim ACCL comes into force on the day it is issued and ceases to be in force on the earlier of:
 - (a) 1 month after it is issued; or
 - (b) when an ACCL is issued for the vessel.
- (2) For a foreign vessel, an interim ACCL also ceases to be in force if any of the matters mentioned in paragraphs 28(2)(a) to (e) occurs.

30 Annual endorsement of ACCL

- (1) An ACCL must be endorsed annually.

Note The survey for annual endorsement of the ACCL would normally be carried out at the same time as the survey for the annual endorsement of the Cargo Ship Safety Construction Certificate.

- (2) The survey for annual endorsement must be completed within 3 months before or after the anniversary date of the ACCL.
- (3) AMSA may endorse an ACCL if:
 - (a) the vessel meets the requirements mentioned in section 25; and
 - (b) AMSA is satisfied that the vessel's livestock structures, livestock equipment and arrangements for the carriage of livestock are in accordance with:
 - (i) the vessel's ACCL; and
 - (ii) this Order.
- (4) In subsection (2), **anniversary date** means the day and the month of each year that correspond to the date of expiry of the ACCL.

Section 34**31 Variation of ACCL**

- (1) AMSA may vary an ACCL for a foreign vessel if satisfied that the criteria mentioned in subsection (3) are met.
- (2) For subsection 101(1) of the Navigation Act, the criteria mentioned in subsection (3) are the criteria for variation of an ACCL for a regulated Australian vessel.
- (3) The criteria are:
 - (a) a written application for a variation of the certificate is made to AMSA, specifying the nature of variation sought; and
 - (b) the vessel complies with the survey requirements that apply to it; and
 - (c) the vessel undergoes any additional surveys required by AMSA; and
 - (d) the vessel complies with any conditions imposed by AMSA.

32 Revocation

- (1) For a foreign vessel, AMSA may revoke an ACCL or an interim ACCL if the livestock operator of the vessel asks that the certificate be revoked.
- (2) For a regulated Australian vessel, the criteria for revocation of an ACCL or an interim ACCL for section 102 of the Navigation Act are any of the following:
 - (a) a condition of the certificate has been, or is likely to be breached;
 - (b) the livestock operator of the vessel changes;
 - (c) the vessel is sold or scrapped;
 - (d) the vessel changes flag;
 - (e) the vessel's classification society changes;
 - (f) the livestock operator of the vessel asks that the certificate be revoked.

33 Documents to be kept on vessel

- (1) The livestock operator of a vessel must ensure that the following documents are on board when the vessel is engaged in the loading or carriage of livestock:
 - (a) either an ACCL or an interim ACCL, whichever applies to the vessel; and
 - (b) a copy of each of the documents provided in support of the application for the ACCL.
Penalty: 50 penalty units.
- (2) An offence against subsection (1) is a strict liability offence.
- (3) A person is liable to a civil penalty if the person contravenes subsection (1).
Civil penalty: 50 penalty units.

34 Notification requirements

- (1) The livestock operator of a vessel for which an ACCL or an interim ACCL has been issued must tell AMSA in writing within 7 days if any of the following occur:
 - (a) the vessel is sold or scrapped;
 - (b) the vessel changes flag or port of registry;
 - (c) the vessel changes name;
 - (d) the livestock operator changes;

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- (e) the vessel's classification society changes;
 - (f) a change is made to the vessel's equipment or arrangements for the carriage of livestock.
Penalty: 50 penalty units.
- (2) An offence against subsection (1) is a strict liability offence.
 - (3) A person is liable to a civil penalty if the person contravenes subsection (1).
Civil penalty: 50 penalty units.

Division 6 Livestock services**35 Livestock services**

- (1) A vessel that is permanently equipped for the carriage of livestock must be fitted with systems and equipment that ensure the maintenance of livestock services at a level necessary for the welfare of the livestock.
- (2) Compliance with Schedule 2 will meet this requirement.
- (3) However, AMSA may approve an alternative arrangement if satisfied that:
 - (a) the arrangement:
 - (i) is at least as effective for ensuring the welfare of livestock on board the vessel as meeting the standards in Schedule 2; and
 - (ii) demonstrates adequate redundancy in systems and equipment; and
 - (iii) is consistent with Annex IV of MARPOL; and
 - (b) any equipment fitted to meet the requirements of Annex IV of MARPOL can be operated by both the main and secondary sources of power.
- (4) If an alternative arrangement is approved by AMSA, the livestock operator must notify AMSA if there is any change to the matters approved in the arrangement.
- (5) Arrangements for the carriage of livestock must be maintained and operated at any time that the number of livestock on board the vessel is 1 or more.

36 Equipment for care of livestock on board

- (1) If any part of the normal means of feeding and watering livestock on the vessel is by an automatic system, there must be an alternative arrangement for feeding and watering in case there is a malfunction of the automatic system.
- (2) It must be possible to implement any alternative arrangements without compromising the safe navigation of the vessel.

Note 1 Orders may have been made for the exporter under section 17 of the AMLI Act about the carriage or handling of livestock or other matters.

Note 2 Under the ISM Code the provision of appropriate resources for tending cargo is the responsibility of the master.

37 Provision of humane killing device

For a vessel carrying livestock, there must be on board a humane killing device that is suitable for each species carried.

Division 7 Fire prevention and extinction

38 Fire hydrants

- (1) A vessel must have fire hydrants so that at least 2 jets of water from separate hydrants can be directed simultaneously to any part of a space or deck where livestock are located.
- (2) The hydrants must be located so that the 2 jets of water can be directed at any point without having hoses pass over or through pens.
- (3) One of the jets of water must be provided by a single length of hose.
- (4) The hydrants must be connected to the vessel's fire main.

39 Fire hoses

- (1) There must be a fire hose, necessary connections and a nozzle capable of directing water in the form of a spray and a jet:
 - (a) in an enclosed space — for each hydrant; and
 - (b) in any other space or on a deck — at least every 50 m of the length of the space or deck.
- (2) Other than in the engine room and accommodation spaces, each hose must be able to be connected to any hydrant and to any other hose.
- (3) The master of a vessel must ensure that each fire hose, with its connections and nozzle, is kept in a conspicuous position:
 - (a) near the hydrant with which it is intended to be used; or
 - (b) close to the entrances or stairways leading to the space or deck where it is intended to be used.

Penalty: 50 penalty units.

- (4) An offence against subsection (3) is a strict liability offence.
- (5) A person is liable to a civil penalty if the person contravenes subsection (3).

Civil penalty: 50 penalty units.

40 Fire prevention — other measures

- (1) If hay, straw or bhusa is carried or used in a space where livestock is located, there must be:
 - (a) portable fire extinguishers:
 - (i) that use water as the extinguishing medium; and
 - (ii) with 1 extinguisher placed adjacent to an entrance to the space; and
 - (iii) with 1 extinguisher placed at least every 18 m of the space; or
 - (b) a fire-fighting arrangement, approved by AMSA, that uses water as the extinguishing medium.
- (2) If electrical equipment, other than for the purposes of lighting, is installed in an enclosed livestock space, the space must have firefighting equipment, suitable for use with the installed electrical equipment, that is:
 - (a) portable fire extinguishers in sufficient numbers for the electrical equipment in the space; or
 - (b) a fixed fire-fighting installation.

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- (3) Fire extinguishers mentioned in subsections (1) and (2) must be tested at least every 5 years in the same manner as they would be tested for the issue of a Cargo Ship Safety Equipment Certificate.
- (4) Hydrants, hoses, hose connections and nozzles, portable fire extinguishers and fixed fire-fighting installations must be of equivalent standard to fire appliances required to be carried for the issue of a Cargo Ship Safety Equipment Certificate.
- (5) Notices must be prominently displayed prohibiting smoking or the use of naked lights in livestock spaces and spaces used for storage of fodder, hay, straw, bhusa, bedding or other flammable material.

Division 8 Bulk fodder and dust laden atmospheres**41 Flammable dust**

- (1) Spaces on board the vessel where flammable dust may be present must be classified in accordance with IEC 60079-10-2:2015 *Explosive atmospheres – Part 10-2: Classification of areas – Explosive dust atmospheres* as amended from time to time.
- (2) If electrical equipment is installed in spaces used for storage or handling of bulk feed, the equipment must be:
 - (a) selected, installed and certified to comply with AS/NZS 61241.14:2005: *Electrical apparatus for use in the presence of combustible dust*, Part 14: *Selection and installation* as amended from time to time or IEC 60079-14:2013: *Explosive atmospheres – Part 14: Electrical installations design, selection and erection* as amended from time to time; and
 - (b) maintained in accordance with IEC 60079-17:2013: *Explosive atmospheres – Part 17: Electrical installations inspection and maintenance* as amended from time to time.

42 Lighting in dust laden atmospheres

- (1) Lighting, or power points for portable lighting, in dust laden atmospheres must be controlled by switches:
 - (a) on the bridge; or
 - (b) at the fodder-handling machinery control station.
- (2) There must be indicator lights to show when power is supplied to lighting or power points.

43 Fodder declarations

If fodder in pelletised or other concentrated form is supplied to a vessel, the master of the vessel must provide to AMSA:

- (a) evidence that the temperature of the fodder, before and during loading, is no greater than the lower of 55°C or 10°C above ambient; and
- (b) either:
 - (i) evidence from the manufacturer that the fodder has been tested in accordance with section 33 of the *UN Recommendations on the Transport of Dangerous Goods – Manual Test and Criteria (6th edition)* and found not to present a self-heating risk; or

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- (ii) evidence from the manufacturer or fodder supplier that the fodder has a combined oil and moisture content of no more than 15%.

44 Fodder to be kept dry and maintained in delivered state

The master of a vessel must ensure that:

- (a) fodder in storage or in feeding receptacles is kept in a dry state, protected from weather and the sea; and
- (b) pellets are kept dry during loading onto the vessel; and
- (c) the average temperature, and oil and moisture content of bulk fodder, as provided in the manufacturer's declaration, remains constant throughout the voyage.

Note The IMSBC Code imposes requirements for carrying seed cake in bulk. See Appendix 1 of the Code.

45 Bulk fodder loaded through portable piping

If bulk fodder is loaded onto a vessel through portable piping:

- (a) the vehicle from which it is loaded must be earthed to a suitable part of the wharf or quay and, if a separate blower trailer is used, it also must be earthed; and
- (b) either:
 - (i) the piping must be arranged so that it is electrically continuous; or
 - (ii) a bare wire strong enough to withstand normal handling must be wound round the full length of the pipe in spiral fashion with a pitch of approximately 500 mm; and
- (c) the piping must be earthed to the vessel and all earth connections must be secured with clips so that there will be no disconnection during the handling or manoeuvring of the piping; and
- (d) if more than 1 pipe length is used:
 - (i) the pipes must not be insulated from each other; and
 - (ii) each pipe length must be earthed to the adjoining length by metal straps, or earthed separately if the pipes are connected by heavy duty seals that are not electrically conductive; and
- (e) a conductive sleeve approximately 500 mm long must be fitted at the discharge end of the pipe and must be electrically continuous with the pipe or the bare spiralled wire mentioned in paragraph (b)(ii).

46 Fodder tanks to be emptied

- (1) Each fodder tank must be completely emptied and cleaned of residues at least every 90 days.

Note 1 The master of the vessel should consider the length of the next voyage if loading fodder into a tank that has not been emptied and cleaned before loading.

Note 2 The master of the vessel may have obligations under Annex V of MARPOL about garbage, and under the Biosecurity Act 2015.

- (2) Pelletised fodder may be loaded into a fodder tank containing fodder from a previous voyage only if at least half the vessel's fodder tanks have been emptied and cleaned of residue before reloading with fodder for the current voyage.

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- (3) The master of a vessel must ensure that a person who enters a fodder tank follows appropriate confined space entry procedures.

Note Oxygen depletion is likely in a space containing large amounts of vegetable matter.

47 Records of emptying fodder tanks

- (1) The master of the vessel must keep records with details of the emptying of fodder tanks.

Penalty: 50 penalty units

- (2) An offence against subsection (1) is a strict liability offence.

- (3) A person is liable to a civil penalty if the person contravenes subsection (1).

Civil penalty: 50 penalty units.

Division 9 Access — people and livestock**48 Livestock spaces — means of egress and access**

- (1) If access for a person to a livestock space is combined with a ramp used for moving livestock between decks, the access for people must be separated from the livestock ramp by protective fencing.
- (2) In a vessel, there must be at least 2 exits from each space where livestock is carried.
- (3) The exits must be widely separated and give access to an open deck.
- (4) If a person uses access on a ramp that is used for loading livestock onto the vessel:
- (a) there must be protective fencing separating the person access from the livestock access that :
 - (i) is at least 1 m high; and
 - (ii) has an intermediate horizontal rail at least 500 mm and less than 600 mm above the walking surface; and
 - (b) the passageway must be at least 550 mm wide and be fitted with treads at a suitable stepping distance.

49 Access to or near pens

- (1) A pen, stall or similar structure for the containment of livestock must have a means of access for people, with a secure closing arrangement.
- (2) The closing arrangement must have a structural strength that corresponds to the strength of the part of the pen, stall or structure to which it connects.
- (3) If, for the safe and proper operation of the vessel, access is required between the side of the vessel and a pen, stall or similar structure, there must be a passageway that is at least 750 mm wide between the vessel's rail or bulwark and the rails of the pen, stall or structure.
- (4) However, the passageway width may be reduced to less than 750 mm, but no less than 550 mm, by obstructions outside the pen rails such as receptacles, pipework or other objects for the provision of livestock services.

50 Minimum height of passageways and walkways

A passageway or walkway in a livestock area must have a clear height of at least:

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- (a) in a vessel that was engaged in carrying livestock from Australia before 1 July 1983 —1.8 m; or
- (b) in any other vessel —2.0 m.

51 Access points, passageways and walkways must be kept clear

- (1) The master of a vessel must ensure that access points or exits mentioned in this Division and passageways provided in accordance with this Order are kept clear at all times during a voyage.

Penalty: 50 penalty units.

- (2) An offence against subsection (1) is a strict liability offence.
- (3) A person is liable to a civil penalty if the person contravenes subsection (1).

Civil penalty: 50 penalty units.

52 Access for livestock to and from the vessel

- (1) For loading livestock onto the vessel or unloading livestock from the vessel, there must be a ramp or other means of access suitable for the species.

Note Downward sloping ramps are not considered suitable for camels when loading into a livestock space.

- (2) The ramp or other means of access must:
 - (a) be load tested every 5 years
 - (b) be set up so that there is no gap between it and the vessel at any time the ramp is in use; and
 - (c) have an arrangement to close it off either at the top or the bottom; and
 - (d) for the species mentioned in Table 3 — comply with that table; and
 - (e) for all other species:
 - (i) be set at a gradient suitable for the species to be loaded or unloaded; and
 - (ii) be fitted with:
 - (A) side panels that are free of protrusions and strong and high enough to prevent escape of livestock; and
 - (B) a non-slip walking surface with battens suitable for the species.
- (3) The closing arrangement mentioned in paragraph (2)(c) must:
 - (a) for sheep, pigs, goats or any other species other than cattle, horses or camels — be a gate capable of being quickly closed; and
 - (b) for cattle, horses or camels — be a sliding gate capable of being quickly closed; and
 - (c) for all species — be positioned close to or at the entry point to the vessel.
- (4) Any ramp or other means of access that is part of the vessel's equipment must be designed to support a uniformly distributed load over the walking surface of at least the value mentioned in Table 1 for the species mentioned in the item.

Table 1 — Ramp —supporting load

Species	Load (Nm ²)
Cattle, horses and camels	4 700

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Species	Load (Nm⁻²)
Sheep, goats and pigs	2 400

- (5) The maximum permissible tensile stress for material used in the construction of a ramp or other means of access is the value mentioned in Table 2 for the material.

Table 2 — Ramp materials — tensile strength

Material	Maximum permissible tensile stress
Steel	0.5 × minimum yield stress
Aluminium	0.5 × 0.2% proof stress
Other	As specified by AMSA

- (6) A camel may be loaded onto a vessel or unloaded from a vessel with a camel harness.
- (7) There must be a clear height of 2.4 m in any area of a vessel that is used for access for camels, including an area where camels in harness are loaded onto the vessel or unloaded from the vessel.
- (8) A camel harness used for loading or unloading must be:
- approved by a veterinary officer authorised by the Department of Agriculture; and
 - tested, certified and inspected in accordance with *Marine Order 32 (Cargo handling equipment) 2016* if it belongs to the vessel.

Division 10 Vessel requirements — all species of livestock**53 Ramp for moving livestock between decks**

Any ramp on which livestock is moved between decks must comply with Table 3.

Table 3 — Ramp for moving livestock between decks

Item	Requirement	Sheep pigs goats	Cattle	Horses
1	Gradient	≤1 in 2	≤1 in 2	≤1 in 2
2	Clear width	≥550 mm	≥750 mm	≥750 mm
3	Height of sides measured perpendicular to ramp floor	≥900 mm	≥1.4 m	≥2 m
4	Sides panelled or sheathed — height of sides measured perpendicular to ramp floor	—	yes, to a height ≥1.2 m	yes, to a height ≥2 m
5	Sides free from protrusions	yes	yes	yes
6	Foot battens	yes	yes	yes

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Item	Requirement	Sheep pigs goats	Cattle	Horses
7	Foot battens — height	≥25 mm	≥50 mm	≥50 mm
8	Foot battens — width	≥10 mm	≥25 mm	≥25 mm
9	Foot battens — well rounded edges	yes	yes	yes
10	Spacing between foot battens	≤300 mm	≤300 mm	≤300 mm
11	Distance from top or bottom end of ramp to first foot batten	≤100 mm	≤200 mm	≤200 mm

54 Additional requirements for moving cattle between decks

A ramp for moving cattle between decks must have a personnel ramp beside it that:

- (a) is more than 500mm wide; and
- (b) has a guard rail 1m high on the side away from the cattle ramp; and
- (c) has access at each deck to avoid personnel having to cross the cattle race; and
- (d) has foot battens or a non-skid surface.

55 Means of closing livestock access to pens or stalls

The means of closing livestock access to a pen or stall must:

- (a) maintain continuity of strength and the alignment of the adjoining boundary; and
- (b) be secured against accidental lifting or removal.

Note The means could be a sliding or swinging gate or portable rails.

56 Protection of pens or stalls on exposed decks

If pens or stalls are on an exposed deck, the uppermost pens or stalls on each deck must be fitted with a roof that:

- (a) ensures compliance with the minimum clear height requirement of pens or stalls for the species to be carried; and
- (b) is waterproof; and
- (c) extends at least 450 mm beyond the deck area occupied by:
 - (i) the pens or stalls; or
 - (ii) any protective sheathing this Order requires the pens or stalls to have.

57 Protection of pens or stalls from sea spray and seawater

Any pens or stalls for livestock that are at the forward end of a livestock structure, on or above the uppermost continuous deck, and their feeding and watering equipment, must be:

- (a) screened effectively from sea spray; and

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- (b) protected, in any sea condition, from seawater entering any part of the pens, stalls or feeding and watering equipment.

Note 1 Subsections 68(4) and (5) give particular protection measures for horses.

Note 2 Compliance with this requirement could change a deck from an open deck to one that is enclosed or partially enclosed. This could change the ventilation requirements of the space.

Division 11 Species requirements**Subdivision 11.1 Sheep, pigs and goats****58 Sheep, pigs and goats — design of pens**

- (1) The construction of pens for sheep, pigs and goats, other than open structures above the weather deck where pen rails or gates form the outer perimeter containment, must comply with Table 4.

Table 4 — Sheep pigs goats — design of pens

Item	Detail of design	Dimension
1	Maximum breadth of pen	4.5 m
2	Minimum breadth of pen	2.0 m
3	Maximum length of pen	Not more than twice the breadth
4	Minimum length of pen	Not less than the breadth
5	Maximum clear floor area within pen	40.5 m ²
6	Minimum clear height within pen for a vessel constructed or converted for the carriage of livestock before 1 July 2018	1.1 m
7	Minimum clear height within pen for a vessel constructed or converted for the carriage of livestock after 1 July 2018:	
	(a) if a mechanical ventilation system is provided in accordance with section 35	1.8 m
	(b) in any other case	2.3 m
8	Maximum clear vertical distance between rails	300 mm
9	Maximum clear vertical distance below bottom edge of lowest rail of pen installed at deck level	200 mm
10	Maximum clear vertical distance below bottom edge of lowest rail of pen not installed at deck level, unless a vertical plate or board is fitted in accordance with subsection 60(2)	50 mm
11	Minimum height of top edge of uppermost rail above pen floor for sheep and pigs	900 mm, or less if the clear height above the uppermost rail is less than 300 mm
12	Minimum width of adjacent passageway clear	550 mm

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Item	Detail of design	Dimension
	of receptacles and any other obstructions	
(2)	For item 5, the clear floor area is the area of the pen excluding fixed receptacles, other objects or structures in the pen, but including a bar fitted in accordance with subclause 5.5(4) of Schedule 2.	
(3)	For an open structure above the weather deck, if pen rails or gates form the outer perimeter containment:	
	(a) the space between the bottom edge of the lowest rail and the top of the deck boundary angle must be no more than 100 mm; and	
	(b) the space between the rails above the bottom rail must be no more than 200 mm; and	
	(c) the railing must continue to a height that is no more than 200 mm below the overhead structure of the vessel.	
(4)	However, for a vessel that was constructed or converted for the carriage of livestock before 1 July 2018 the railing is not required to comply with paragraph (3)(c) until 1 July 2023.	
(5)	The decks for pens, passageways and ramps between decks must have a surface that provides a non-slip foothold for sheep.	

59 Sheep, pigs and goats — strength of pen structures

- (1) Rails and stanchions that form a fore and aft boundary of a sheep, pig or goat pen must be able to withstand a load per metre length, uniformly distributed up to the height of the top of the uppermost rail, using Formula 1:

Formula 1

$$F = 1668 B (0.574 + 0.0252 Z)$$

where:

F is the boundary load in newtons per metre length

B is the maximum breadth of the pen, in metres.

Z is the vertical distance from a point 0.5 m above the pen floor to the vessel's water-line corresponding to the anticipated lightest load, in metres

Note The approved stability booklet for the vessel contains the information for the load calculation.

- (2) However, a rail the centre of which is more than 900 mm above the pen floor is not to be included in the load calculations.
- (3) Rails and stanchions that form a boundary, other than a fore and aft boundary, of a sheep, pig or goat pen must be of substantially the same method of construction and of substantially the same scantlings as required for the fore and aft boundaries.
- (4) Any two-thirds of the area of the floor of a sheep, pig or goat pen must be able to withstand 100% of the floor load uniformly distributed over the area.

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- (5) The floor load is determined according to Formula 2:

Formula 2

$$F = 2500 \left[1 + \frac{1}{d} \left((0.094 - 0.00035 L)y + (7.4 - 0.016 L) \right) \right]$$

where:

F is the floor load, in newtons per square metre

d is the draught of the vessel corresponding to the anticipated lightest loaded water-line, in metres.

L is the length between the perpendiculars of the vessel, in metres.

y is the longitudinal distance from the midpoint of the pen to amidships, in metres.

Note The approved stability booklet for the vessel contains the information for the load calculation.

- (6) Subsections (1) to (4) apply to the floor support of a sheep, pig or goat pen whether or not it also forms the top boundary of a lower tier pen.
- (7) For a sheep, pig or goat pen structure above the uppermost continuous deck, instead of compliance with subsections (1) to (5), AMSA may approve calculations that show that the rails and stanchions of the pens, the pen floors and the floor supports can withstand appropriate design forces, according to the criteria specified by the vessel's classification society for the design of the vessel structure.
- (8) The stresses for materials used in the construction of boundaries and floors of a pen must not exceed the figures in Table 5 when the materials are under the loads determined in accordance with subsections (1) and (5).

Table 5 — Boundary and floor materials — maximum permissible stress

Material	Maximum permissible tensile stress	Maximum permissible shear stress
Steel	0.75 × minimum yield stress	50% of maximum permissible tensile stress
Aluminium	0.75 × 0.2% proof stress	50% of maximum permissible tensile stress
Other	As determined by AMSA	As determined by AMSA

60 Sheep, pigs and goats — arrangements of pens, walkways and passageways

- (1) There must be a passageway on at least 1 side of each pen.
- Note* A passageway on the longest pen boundary provides better access for animals to feed.
- (2) If a lower tiered pen has a water or food receptacle beside a passageway, the upper tiered pen above it must have fitted to the side adjoining the passageway, to prevent the fouling of food and water of livestock in lower tiers, a vertical plate or board that:
- (a) is at least 225 mm high; and

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- (b) abuts the floor of the pen.
- (3) If pens are constructed in more than 1 tier on a deck, walkways must be provided so that no pen floor is more than 1.5m above the deck or a walkway.

61 Goats — additional requirements

- (1) The following additional requirements apply to pens used for the carriage of goats:
- (a) there must be pen rails:
- (i) to a height of at least 1.5 m above the pen floor; or
 - (ii) to a height where the clear height above the uppermost rail is less than 300mm;
- (b) for any goat pen that is not on the upper tier of a 2 tier structure:
- (i) the space between the rails must be closed off to contain goats in the pen; and
 - (ii) food and water receptacles must be located inside the pen.

Note For subparagraph (1)(b)(i), wire mesh is considered to be an effective means of containment.

- (2) A means of containment in accordance with paragraph (1)(b) is not required to be inspected if:
- (a) the vessel is not otherwise required to have a pre-loading inspection; and
 - (b) the master confirms that the means of containment has been effective and has previously been accepted by an inspector as complying with this Order.
- (3) If a means of containment is accepted by an inspector, a log book entry must be made recording acceptance of the arrangement by the inspector.

Subdivision 11.2 Cattle**62 Cattle — design of pens and passageways**

- (1) The dimensions of a pen for cattle and adjacent passageways must comply with Table 6.

Table 6 — Cattle — design of pens and passageways

Item	Detail of design	Dimension
1	Maximum breadth of pen	4.5 m
2	Minimum breadth of pen	2.1 m
3	Minimum length of pen	2.3 m
4	Maximum clear floor area within pen	21 m ²
	<i>Note</i> see subsection (2)	
5	Maximum height of top edge of lowest rail above pen floor between pens	600 mm
6	Maximum height of top edge of lowest rail above pen floor in boundaries of pen other than between pens	300 mm
7	Maximum distance between 2 adjacent rails of pen (but see subsection (4) for cattle fed or watered from outside the pen)	300 mm

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Item	Detail of design	Dimension
8	Maximum distance between top rail and overhead structure of the vessel in open structures above the weather deck, where pen rails form the outer perimeter containment	300 mm
9	Minimum clear height within pen:	
	(a) if a mechanical ventilation system is provided in accordance with section 35	1.8 m
	(b) in any other case	2.3 m
10	Minimum width of adjacent passageway, measured clear between rails, if pens are on both sides of the passageway and cattle are loaded and discharged through the pens	1 m
11	Minimum width of adjacent passageway, measured clear of any fixed structures, receptacles or other obstructions, if pens are on both sides of the passageway and cattle are loaded and discharged through the pens	0.7 m
12	Minimum width of adjacent passageway, measured clear of any fixed structures, receptacles or other obstructions, if pens are on both sides of the passageway and cattle are loaded and discharged through the passageway	1 m

Note Subsections 49(3) and (4) provide minimum width for passageways where pens are on 1 side only of the passageway.

- (2) For item 4, the clear floor area is the area of the pen excluding fixed receptacles, other objects or structures in the pen, but including a bar fitted in accordance with subclause 5.5(4) of Schedule 2.
- (3) For item 8, for a vessel constructed or converted for the carriage of livestock before 1 July 2018, the vessel is not required to comply until 1 July 2023, but must have railings with a minimum height of 1.4 m from the floor to the centre of the top rail.
- (4) If a water or food receptacle is fitted to the outside of a pen, or fodder is distributed on the floor outside a pen, a clear vertical space of not more than 500 mm may be provided between adjacent pen rails on the side of the pen adjoining the passageway, for watering or feeding livestock in the pen.
- (5) If cattle are carried in a stall, rather than a pen, the stall must comply with section 66 as if that section applied to cattle.
- (6) The deck for pens, passageways and ramps between decks must have a surface that provides a non-slip foothold for cattle.

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63 Cattle — strength of pen and stall structures

- (1) Rails and stanchions that form a fore and aft boundary of a cattle pen or stall must be able to withstand a load per metre length, uniformly distributed up to the height of the top of the uppermost rail, using Formula 3:

Formula 3

$$F = 3336 B (0.574 + 0.0252 Z)$$

where:

F is the boundary load in newtons per metre length

B is the maximum breadth of pen, in metres

Z is the vertical distance from a point 0.75 m above the pen or stall floor to the vessel's water-line corresponding to the anticipated lightest load, in metres

Note The approved stability booklet for the vessel contains the information for the load calculation.

- (2) However, a rail the centre of which is more than 1.4 m above the pen or stall floor is not to be included in the load calculations.
- (3) Rails and stanchions that form a boundary, other than a fore and aft boundary, of a cattle pen or stall must be of substantially the same method of construction and of substantially the same scantlings as required for the fore and aft boundaries.
- (4) Any two-thirds of the area of the floor of a cattle pen must be able to withstand 100% of the floor load uniformly distributed over the area.
- (5) The floor load is determined according to Formula 4:

Formula 4

$$F = 5000 \left[1 + \frac{1}{d} \left((0.094 - 0.00035 L)y + (7.4 - 0.016 L) \right) \right]$$

where:

F is the floor load, in newtons per square metre

d is the draught of the vessel corresponding to the anticipated lightest loaded water-line, in metres

L is the length between the perpendiculars of the vessel, in metres

y is the longitudinal distance from the midpoint of the pen to amidships, in metres

Note The approved stability booklet for the vessel contains the information for the load calculation.

- (6) The floor of a cattle stall must be of substantially the same method of construction and of substantially the same scantlings as required for a cattle pen.
- (7) Subsections (1) to (4) apply to the floor support of a cattle pen whether or not it also forms the top boundary of a pen on a lower deck.
- (8) For a cattle pen structure above the uppermost continuous deck, instead of compliance with subsections (1) to (5), AMSA may approve calculations that show that the rails and stanchions of the pens, the pen floors and the floor

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supports can withstand appropriate design forces, according to the criteria specified by the vessel's classification society for the design of the vessel structure.

- (9) The stresses for materials used in the construction of boundaries and floors of a pen must not exceed the figures in Table 5 when the materials are under the loads determined in accordance with subsections (1) and (5).

64 Cattle — arrangement of pens, stalls and passageways

- (1) There must be a passageway and a means of access to pens for the care and removal of cattle.
- (2) There must be a means of access at the rear of each stall.

Subdivision 11.3 Horses**65 Horses — arrangements for carriage**

- (1) A horse on a vessel must be in a separate stall.
- (2) However, a horse may be carried in a pen if:
- the pen complies with subsection 62(1); and
 - hospital pens are provided in accordance with section 75, as if that provision applied to horses; and
 - the design and arrangement of the pen is approved, before loading, by a veterinary officer authorised by the Department of Agriculture.

66 Horses — design of stalls and passageways

- (1) The dimensions of a stall for horses and adjacent passageways must comply with Table 7.

Table 7 — Horses — design of stalls and passageways

Item	Detail of design	Species	Dimension
1	Maximum clear length within stall	(i) Horses	2.5 m
		(ii) Mules or donkeys	2.3 m
2	Minimum clear length within stall		2.3 m
3	Minimum clear passage:		
	(a) between 2 rows of stalls and bounded by the front rails	(i) Horses	1.7 m
		(ii) Mules or donkeys	1.5 m
	(b) between 2 rows of stalls and bounded by front and back rails		1.2 m
	(c) in any other case		1 m
4	Minimum clear width within stall:		
	(a) if the stall is aligned athwartships		0.7 m
	(b) if the stall is aligned fore and aft		0.9 m

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Item	Detail of design	Species	Dimension
5	Height of uppermost front, back and side rail from floor to top edge		1.15 m
6	Height of lowest front, back and side rail from floor to top edge		0.75 m

- (2) The clear height within a stall must be approved by a veterinary officer authorised by the Department of Agriculture.

67 Horses — strength of stall structures

- (1) The rails and stanchions of a horse stall must be constructed of materials that:
- have a strength of at least that of heavy gauge tubular steel pipe with a 50 mm nominal bore; or
 - comply with AS 1074-1989 *Steel tubes and tubulars for ordinary service* as amended from time to time.
- (2) The floor of a horse stall must have the strength to withstand a load calculated in accordance with subsections 63(4) and (5), as if those provisions applied to a horse stall.

68 Horses — arrangement of stalls and passageways

- (1) There must be a passageway at the front of each horse stall.
- (2) There must be a means of access to the rear of each horse.
- (3) The floor of a stall must:
- be constructed to facilitate drainage and cleaning; and
 - if constructed of wood:
 - have boards that are:
 - close fitting at the front of the stall; and
 - spaced between 20 and 30 mm apart at the rear; and
 - secured against lifting; and
 - have foot battens at the front and rear of the stall that:
 - are at least 50 mm high; and
 - are at least 50 mm wide; and
 - have well rounded edges; and
 - if constructed of concrete:
 - have concrete that is finished off to provide a non-slip surface; and
 - provide suitable standings; and
 - if constructed of metal mesh:
 - be made with rods:
 - with a diameter of between 8 and 10 mm; and
 - that are placed to provide openings of no more than 50 mm by 50 mm; and
 - provide suitable standings.
- (4) A stall on an exposed deck must:

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- (a) for a stall on an outer edge of the vessel — have protective sheathing fitted on its outboard side; and
 - (b) for a stall the forward end of which is exposed — have protective sheathing fitted on its forward end.
- (5) Sheathing:
- (a) may be portable if it can be fitted from outside a stall; and
 - (b) must effectively screen the stall and its feeding and watering arrangements from sea spray; and
 - (c) must not exclude natural ventilation.
- (6) If the back of a stall forms a boundary of a passageway or another stall, a kick rail or board must be fitted to that end of the stall so that the clear space between rails, or rail and board, is less than 150 mm.
- (7) The following measures must be taken for restraint of a horse:
- (a) the horse must be fitted with a collar made of leather or other suitable material;
 - (b) each stall must have cross ties and suitable fastenings for use with the collar.
- (8) If the cross ties are made of chain, the master of the vessel must ensure that a set of bolt cutters that can cut the chain is carried and kept readily available.
- Penalty: 50 penalty units.
- (9) An offence against subsection (8) is a strict liability offence.
- (10) A person is liable to a civil penalty if the person contravenes subsection (8).
- Civil penalty: 50 penalty units.

Subdivision 11.4 Camels**69 Camels — design of pens and passageways**

- (1) The dimensions of a pen for camels and adjacent passageways must comply with Table 6 as if that table applied to camels, except that:
- (a) the minimum clear height within the pen must be at least 2.4 m; and
 - (b) if a water or food receptacle is fitted to the outside of the pen or feed is distributed on the floor outside the pen — there may be a clear vertical space of at least 450mm and no more than 500 mm between 2 adjacent pen rails on the side of the pen adjoining the passageway.
- (2) There must be no intrusion into the pen, or accessway to the pen, that reduces the clear height below 2.4 m.
- (3) If a camel pen has kickboards or is sheathed in mesh, the kickboards or mesh must extend for at least 1 m above the pen floor.

Note Special arrangements are required for camels because they may attack people or chew parts of the vessel eg cabling or piping.

70 Camels — strength of pen and stall structures

Section 63 applies to camel pens as if they were cattle pens.

71 Camels — other requirements for pens

- (1) Camel pens must be located close to the entry point onto the vessel.

Note Camels are difficult to move around a vessel.

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- (2) Camel pens must be non-contiguous with pens carrying other livestock.
- (3) The camels in a pen must be a similar size and the same gender.

Subdivision 11.5 Other species of livestock**72 Other species of livestock**

- (1) If livestock other than sheep, pigs, goats, cattle, horses or camels is to be carried:
 - (a) there must be stalls or pens that:
 - (i) can safely contain the livestock for the time of the voyage; and
 - (ii) are constructed appropriately for the size, other characteristics and needs of the livestock; and
 - (iii) have arrangements to adequately feed, water and tend the livestock; and
 - (b) other measures for the safety of the livestock, and of people near the livestock, must be taken, in conformity with the requirements for the species mentioned in this Order; and
 - (c) there must be appropriate hospital pens or stalls.
- (2) The arrangements mentioned in subsection (1) must be approved by AMSA before the livestock is loaded onto the vessel.

Division 12 Hospital pens**73 Hospital pens**

- (1) A hospital pen must:
 - (a) be constructed to the same standard as a pen for the species of livestock for which it is provided; and
 - (b) be clearly identified as a hospital pen.
- (2) Animals that are individually penned or stalled may be disregarded when calculating the number or area of hospital pens.
- (3) If a deck is divided into separate compartments by watertight doors, a hospital pen must be provided in each compartment of the deck for each species carried in the compartment.

74 Sheep, pigs and goats — hospital pens

- (1) There must be hospital pens equal in area to at least 0.25% of the pen area used for the carriage of sheep, pigs or goats.
- (2) There must be a hospital pen on each deck on which sheep, pigs or goats is carried.
- (3) AMSA may approve a hospital pen with a length and width not in accordance with Table 4, if no side of the pen is less than 1.5 m long.

75 Cattle — hospital pens

- (1) There must be hospital pens equal in area to at least 1% of the pen area used for the carriage of cattle.
- (2) There must be a hospital pen on each deck on which cattle are carried.

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- (3) However, if the pen area for the carriage of cattle on a deck is less than 500 m², the hospital pens may be sited on an adjacent deck above or below if:
 - (a) they are easily accessible to cattle transferred from the other deck; and
 - (b) the transfer is not through a watertight opening; and
 - (c) the area of the hospital pens is at least 1% of the total pen area available for the carriage of cattle on all the decks they serve.
- (4) AMSA may approve a hospital pen with a length and breadth not in accordance with Table 6, if no side of the pen is less than 1.5 m long.

Division 13 Carriage of livestock in portable equipment**76 Application of this Order to use of portable equipment**

For the use of portable equipment to carry livestock on a vessel, only the following provisions of this Order apply:

- (a) this Division;
- (b) sections 9 and 84 to 87.

77 Approval of portable equipment

- (1) Portable equipment may be used for the carriage of livestock only if it is approved by AMSA.
- (2) AMSA may approve the portable equipment subject to conditions.

Example of conditions

Conditions relating to the use of the equipment and the species of livestock that may be carried.

Note Marine Order 32 (Cargo handling equipment) 2016 and Marine Order 44 (Safe containers) 2002 may apply to portable equipment.

78 Arrangements for portable equipment

- (1) Portable equipment containing livestock must:
 - (a) be stowed in a position that ensures that:
 - (i) livestock are protected from the weather and not exposed to machinery exhaust; and
 - (ii) there is access to equipment and livestock consisting of:
 - (A) at least 1.2 m wide along the length of the equipment; and
 - (B) if the equipment is end loaded — at least 1 m end clearance.
 - (b) be secured to prevent movement; and
 - (c) be adequately lit and ventilated; and
 - (d) have adequate provision for:
 - (i) cleaning and drainage; and
 - (ii) feeding and watering.
- (2) The arrangements mentioned in subsection (1) must be approved by AMSA.
- (3) Portable equipment containing livestock must be constructed or arranged to minimise:
 - (a) livestock projecting their heads or limbs out of the equipment; and
 - (b) spillage of excrement onto the deck of the vessel or to a lower tier of livestock.

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- (4) Openings for ventilation in portable equipment must be positioned to prevent direct draughts on livestock.
- (5) Portable equipment units for horses must have an opening in both the front and rear, or in both sides, with each opening measuring at least 0.4 m².
- (6) Portable equipment containing horses must be positioned so that the horses stand facing athwartships.

Division 14 Short voyages**79 Pen requirements**

For any species other than sheep, cattle or horses, the minimum clear height of a pen must be determined for each voyage by an inspector of livestock, appointed under the law of a State or Territory for the control of livestock diseases, in the State or Territory of the port from which the livestock is shipped.

Note The requirements for pens and passageways for sheep, cattle and horses set out in subdivisions 11.1, 11.2 and 11.3 apply on a short voyage.

80 Carriage of livestock in certain transport units

- (1) This section applies if livestock is carried in the following transport units in accordance with the laws of the State or Territory of the port in which the livestock is shipped:
 - (a) a registered road vehicle;
 - (b) a registered trailer or float;
 - (c) a portable stock crate mounted on a registered road vehicle;
 - (d) any other transport unit approved by AMSA.
- (2) Provisions of this Order about the carriage of livestock in pens do not apply.
- (3) Subsections 78(1) and (3) apply as if the transport units mentioned in subsection (1) were portable equipment.

81 Stowing and securing certain transport units

- (1) The master of the vessel must ensure that road vehicles and horse floats are secured and stowed in accordance with the requirements for portable equipment in paragraphs 78(1)(a) and (b).

Penalty 50 penalty units.
- (2) An offence against subsection (1) is a strict liability offence.
- (3) A person is liable to a civil penalty if the person contravenes subsection (1).

Civil penalty 50 penalty units.

82 Water for livestock

- (1) Before livestock is loaded onto a vessel, the shipper or the driver of a road vehicle must tell the master of the vessel when the livestock was last watered.
- (2) Sufficient water, distribution systems and water receptacles must be carried on the vessel to enable livestock to be watered if the vessel is unexpectedly delayed.
- (3) The master must ensure that livestock is watered at least once every 24 hours that the livestock is on board.

Penalty 50 penalty units.

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- (4) An offence against subsection (3) is a strict liability offence.
- (5) A person is liable to a civil penalty if the person contravenes subsection (3).
Civil penalty 50 penalty units.

83 Ventilation for livestock

- (1) Livestock must be provided with adequate flow through ventilation close to the containment unit, either above or below it, or both.
- (2) If a road vehicle has a ventilation system that works effectively only when the vehicle is moving, it must not be used for sea transport.
- (3) A horse float must have an opening in both the front and rear of the float, each measuring at least 0.4 m².
- (4) If a mare with a foal at foot is transported in a float and the doors of the float are required to be open for ventilation, the foal must be restrained to prevent escape from the float.
- (5) If livestock is carried on an enclosed deck of a ro-ro vessel, the master must ensure that the ventilation system of the vessel is run continuously.

Division 15 Reports and investigations**84 Master's report**

After completion of a voyage on which livestock has been carried, the master of a vessel must give a report in the approved form to:

- (a) the Department of Agriculture; and
- (b) AMSA.

Note For the approved form — see AMSA's website: <http://www.amsa.gov.au>.

85 Notifiable incidents

- (1) If the reportable mortality level for a species mentioned in Table 8 is reached during a voyage, the master of the vessel must give AMSA within 24 hours a report containing the following information:
 - (a) the species;
 - (b) the number of livestock that has died expressed as a percentage of the number of livestock of that species that was provided to AMSA under section 13 before the voyage;
 - (c) any factors that the master considers may have contributed to the deaths;
 - (d) current location of the vessel;
 - (e) destination of the vessel and estimated time of arrival at that destination;
 - (f) expected date of next arrival at an Australian port.Penalty: 50 penalty units.
- (2) An offence against subsection (1) is a strict liability offence.
- (3) A person is liable to a civil penalty if the person contravenes subsection (1).
Civil penalty: 50 penalty units.
- (4) For subsection (1), loading and unloading are part of the voyage.

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- (5) Reportable mortality levels, expressed as a figure or as a percentage of the number of animals of that species that were loaded onto the vessel, are set out in Table 8.

Table 8 — Reportable mortality levels

Item	Species/Voyage	Reportable mortality level
1	Sheep, pigs and goats	The greater of 1% or 3 animals
2	Cattle and buffalo on a voyage of at least 10 days	The greater of 1% or 3 animals
3	Cattle and buffalo on a voyage of less than 10 days	The greater of .5% or 3 animals
4	Horses, donkeys and mules	The greater of 2% or 3 animals
5	Camels	The greater of 2% or 3 animals
6	Any other species	The greater of 2% or 3 animals

- (6) The report mentioned in subsection (1) does not replace any report that the master may be required to give to another agency.

Note The *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* and *Marine Order 95 (Marine pollution prevention — garbage) 2013* impose requirements on the disposal of dead livestock at sea. Those requirements implement Australia's obligations under Annex V of MARPOL.

86 Investigations

- (1) If the reportable mortality level mentioned in section 85 is reached, AMSA may conduct an investigation into the cause of the deaths and prepare a report.
- (2) An investigation commences when AMSA notifies, in writing, the livestock operator of the vessel.
- (3) AMSA may require the livestock operator or master of a vessel to give information:
- for the investigation; or
 - so that AMSA can monitor the situation on board a vessel still engaged on its voyage.
- (4) The livestock operator or master of the vessel must comply with a requirement to give information under subsection (3).
- Penalty: 50 penalty units.
- (5) AMSA may prohibit, or impose conditions on, the loading of livestock onto a vessel:
- during the conduct of an investigation; or
 - after an investigation has been completed.
- (6) The master of the vessel must comply with a prohibition or condition imposed under subsection (5).

Penalty: 50 penalty units.

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- (7) An offence against subsection (4) or (6) is a strict liability offence.
- (8) A person is liable to a civil penalty if the person contravenes subsection (4) or (6).

Civil penalty: 50 penalty units.

87 Action by AMSA following an investigation

- (1) After an investigation report has been completed, AMSA must consider what action will be taken for the vessel.
- (2) If, after consideration, the vessel's ACCL is not revoked, AMSA must revoke any prohibition or conditions on the loading of livestock that it imposed under subsection 86(5).
- (3) Following an investigation, if AMSA considers that the safety of a person or the carriage of livestock is not sufficiently provided for although the vessel, its equipment and arrangements for the carriage of livestock comply with this Order, AMSA may give a direction requiring additional precautions or conditions for the carriage of livestock.
- (4) The direction may be given to the livestock operator, the master of the vessel or both.
- (5) A person who receives a direction must comply with that direction.
Penalty: 50 penalty units.
- (6) An offence against subsection (5) is a strict liability offence.
- (7) A person is liable to a civil penalty if the person contravenes subsection (5).
Civil penalty: 50 penalty units.

Schedule 1 Stability criteria for livestock carriers

(paragraph 11(1)(a))

Part 1 Effects of shift and wind

The effects of the shift of livestock and fodder and the effect of wind are to be taken into account in the following manner.

1.1 Shift of livestock criteria

- (1) The heeling lever due to the shift of livestock at 0° is:

$$\frac{\text{Average mass of livestock carried} \times \text{livestock shift constant}}{\text{floor area per head of livestock} \times \text{displacement}}$$

where:

average mass of livestock carried means the average mass of livestock to be carried on the intended voyage.

floor area per head of livestock means the floor area required per head of average mass of the livestock to be carried on the intended voyage.

livestock shift constant is:

$$\frac{\sum [\text{length of each pen} \times (\text{breadth of each pen})^2]}{6}$$

- (2) For a vessel with uniform breadth of pens, the livestock shift constant is:

$$\frac{\text{breadth of pen} \times \text{total floor area of pens}}{6}$$

- (3) For a vessel with varying breadths of pens, the largest breadth may be used:

$$\frac{\text{largest breadth of pen} \times \text{total floor area of pens}}{6}$$

- (4) The heeling lever due to the shift of livestock at 40° is:

$$0.8 \times \text{heeling lever due to the shift of livestock at } 0^\circ.$$

- (5) The heeling lever curve is a straight line joining the heeling lever at 0° and the heeling lever at 40°.

1.2 Shift of fodder criteria

- (1) The heeling lever due to the shift of fodder in pellet form carried in bulk at 0° is:

$$\frac{\text{total shift moment of fodder}}{\text{stowage factor of fodder} \times \text{displacement}}$$

where total shift moment means the sum of the shift moment of each compartment calculated as follows:

$$0.044 \times l \times b^3$$

where:

b is the maximum breadth of the compartment.

l is the maximum length of the compartment.

-
- (2) Volumetric shift moments may be work out the total shift moment of fodder, assuming the surface to be at:
- for a full compartment —15° to the horizontal; or
 - for a partly filled compartment — 25° to the horizontal.
- (3) The heeling lever due to the shift of fodder in pellet form carried in bulk at 40° is:
- 0.8 × heeling lever due to the shift of fodder at 0°.
- (4) The heeling lever curve is a straight line joining the heeling lever at 0° and the heeling lever at 40°.

1.3 Effect of wind criteria

- (1) The heeling lever due to the effect of wind at 0° is:

$$\frac{PAH}{\text{displacement}}$$

where:

P (wind pressure) is 0.05 tonnes/m².

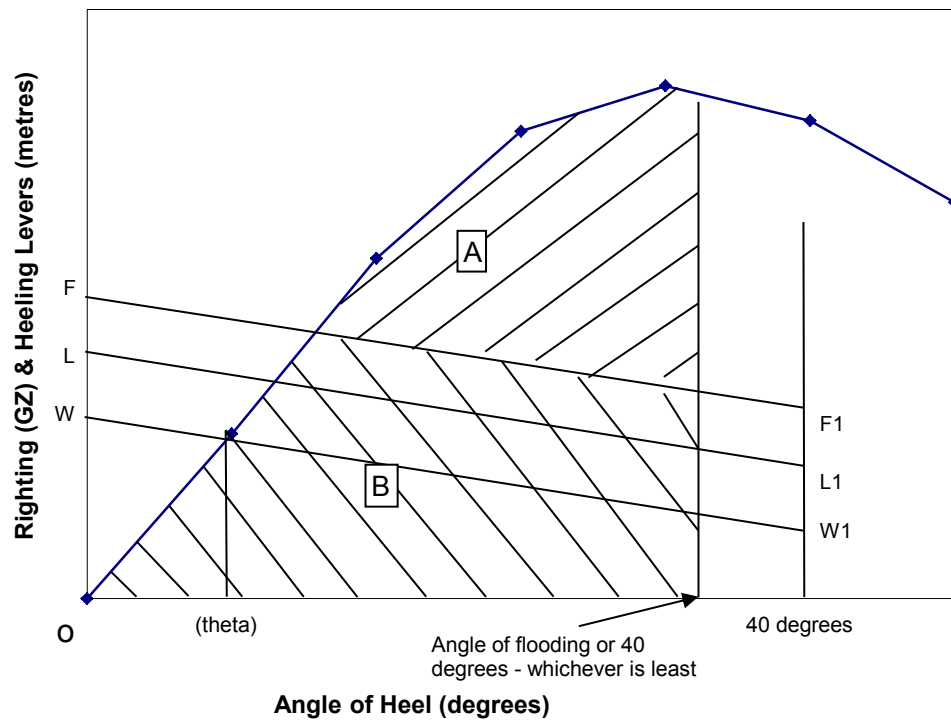
A is the lateral area of the vessel above the waterline, in m².

H is the vertical distance between the centroid of the lateral area of the vessel above the waterline and the centroid of the vessel's underwater lateral area.

Note For many vessels the vertical position of the centroid of the underwater lateral area may be taken at half the draft to the underside of the keel at amidships.

- (2) The heeling lever due to the effect of wind at 40° is:
- 0.8 × heeling lever due to the effect of wind at 0°.
- (3) The heeling lever curve is a straight line joining the heeling lever at 0° and the heeling lever at 40°.

1.4 Illustration of stability requirements



where:

FF_1 is the heeling lever curve due to the combined effects of wind and the shift of livestock and fodder.

LF is the heeling lever at 0° due to the effect of shift of fodder.

LL_1 is the heeling lever curve due to the combined effects of the wind and the shift of livestock.

WL is the heeling lever at 0° due to the shift of livestock.

WW_1 is the heeling lever curve due to wind.

OW is the heeling lever at 0° due to wind.

θ is the angle of heel due to wind.

Note If fodder is not pellet feed carried in bulk, the heeling lever due to shift of fodder will be zero.

Part 2 Information to be provided on vessel

2.1 Livestock shift constant

The livestock shift constant is to be determined for all conditions of pen utilisation that may arise in practice, unless the maximum value is used for all calculations.

Note The livestock shift constant will vary for different configurations of pen utilisation eg. the constant will vary depending on the species of livestock carried.

2.2 Heeling moment for fodder

The heeling moment for fodder must be provided by either:

- (a) determining separately the heeling moment for each compartment; or
- (b) determining the greatest heeling moment for all compartments added together.

Note The greatest heeling moment for all compartments added together is also the total heeling moment for the worst condition of stability.

2.3 Wind effect

For subclause 1.3(1):

- (a) A and H will vary with the draft of the vessel; and
- (b) either:
 - (i) their values must be given for the range of drafts that may occur in practice; or
 - (ii) the heeling lever due to the effect of wind at 0° may be given in tabular or graphical form.

Part 3 Example

3.1 Purpose of Part

- (1) This Part provides an example of calculations to demonstrate compliance with subsection 11(1).
- (2) Other methods for demonstrating compliance may be used.

3.2 Information required

Item	Information	Symbol	Source
1	Livestock shift constant	C	Vessel's information
2	Average mass of livestock per animal	m	Shipper's declaration
3	Floor area per animal	f	Table for species in ASEL
4	Fodder heeling moment	F	Vessel's information
5	Stowage factor of fodder	S	Fodder supplier's declaration
6	Wind pressure	P	0.05 tonnes/m ²
7	Lateral area of the vessel above the waterline	A	Vessel's information
8	Vertical separation of centroids	H	Vessel's information
9	Displacement	D	Vessel's information
10	GM	GM	Vessel's information

3.3 Calculation

- (1) Livestock:

$$\text{Heeling lever at } 0^\circ = \frac{m \times C}{f \times D} = Z$$

(2) Fodder:

$$\text{Heeling lever at } 0^\circ = \frac{F}{S \times D} = Y$$

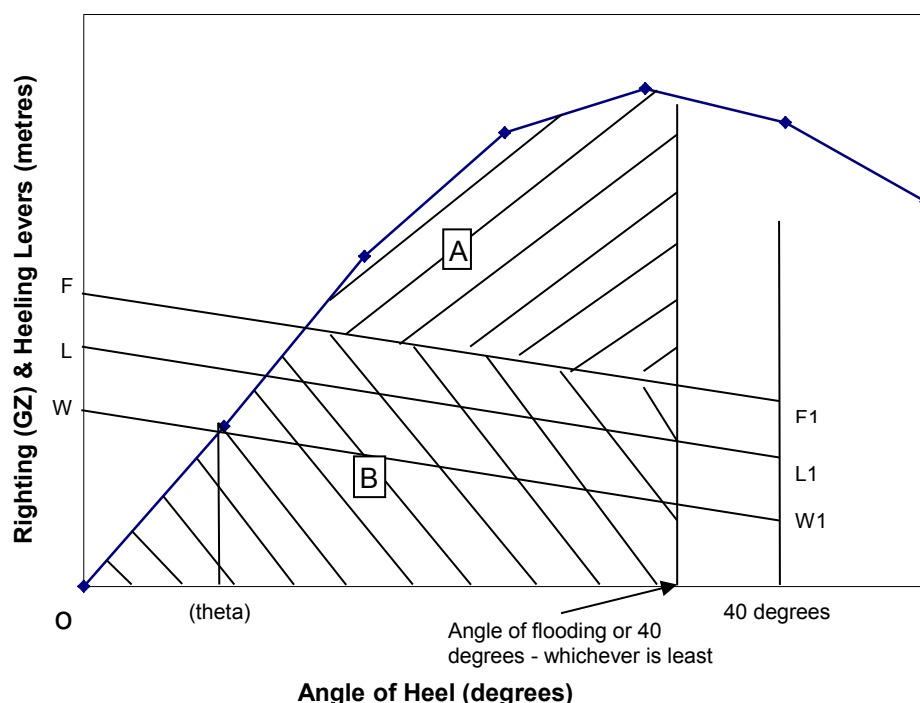
(3) Wind:

$$\text{Heeling lever at } 0^\circ = \frac{0.05 \times A \times H}{D} = X$$

(4) Angle of heel due to wind:

$$\text{Angle of heel} = \frac{X}{GM} \times 57.3 = Q$$

3.4 Comparison with stability criteria



- (1) Check that area under righting lever curve is at least:
 - (a) 3.15 metre-degrees up to 30° angle of heel; and
 - (b) 5.16 metre-degrees up to 40° angle of heel, or angle of flooding if this angle is less than 40°.
- (2) Check that area under righting lever curve between the angles of heel of 30° and 40°, or, if this angle is less than 40°, between 30° and angle of flooding, is at least 1.72 metre-degrees.
- (3) Check that righting lever GZ is at least 0.20 metres at an angle of heel of at least 30°.
- (4) Check that maximum righting lever occurs at an angle of heel of at least 25°.
- (5) Check that initial metacentric height GM is at least 0.15 m.
- (6) Check that angle of heel due to wind effect is not more than 10°.
- (7) Check that area A is at least [1.03 metre-degrees + 0.2 area (A+B)].

Schedule 2 Provision of livestock services

(subsection 35(2))

Note Adherence to the standards set out in this Schedule will satisfy subsection 35(1). The following standards aim to ensure that livestock services are maintained even in the event of system failure. These standards will be used to measure any alternative arrangement proposed under subsection 35(3).

Part 1 Sources of electrical power for vessels

1.1 Main source

The vessel's main source of power, as mentioned in Regulation 41 of Chapter II-1 of SOLAS must, in addition to being able to supply the services mentioned in Regulation 40.1.1 under the conditions mentioned in Regulation 41, be able to supply power to the livestock services under the same conditions.

1.2 Secondary source

- (1) A vessel must have at least 1 secondary source of power.
- (2) The secondary source of power must:
 - (a) be located in an area that is not contiguous with a space that contains any part of the main source of power; and
 - (b) be independent of any services provided from or through a space that contains the main source of power; and
 - (c) have a prime mover that is capable of being started easily by an arrangement powered by an independent source of energy that can fully recharge the starting arrangement within 30 minutes; and
 - (d) be able to supply power to livestock services for at least 3 days if the main source of power fails for any reason; and
 - (e) be maintained in a condition acceptable to the vessel's classification society; and
 - (f) in conjunction with ancillary systems and other electrical systems associated with livestock services, comply with Regulation 45 of Chapter II-1 of SOLAS and meet the requirements of the vessel's classification society for electrical systems; and
 - (g) have instructions for changeovers between main and secondary sources that:
 - (i) are displayed in the space containing the secondary source of power; and
 - (ii) are readable under the emergency lighting mentioned in Regulation 43.2.2 of Chapter II-1 of SOLAS; and
 - (iii) detail starting method, switchboard changeover and electrical supply changeover for livestock services.
- (3) For paragraph (2)(c), the emergency source of power required by paragraph 1.1 of Regulation 43 of Chapter II-1 of SOLAS may be used to power the starting arrangement in accordance with paragraph 1.4 of Regulation 43 of Chapter II-1 of SOLAS.
- (4) However:

- (a) the emergency source of power must comply with paragraph 2 of Regulation 43 of Chapter II-1 of SOLAS at all times; and
- (b) the vessel's classification society must approve the arrangement.

Part 2 Ventilation

2.1 Ventilation in an enclosed space

- (1) An enclosed space for the carriage of livestock must have a mechanical ventilation system that can change the total volume of air in the space in accordance with **Table 2.1**.

Table 2.1 — Capacity ventilation systems

Item	Minimum clear height of the space	Time within which complete air change must occur
1	≤1.8 m	at least every 2 minutes
2	≥2.3 m	at least every 3 minutes
3	>1.8 m and <2.3 m	proportionately between 2 and 3 minutes

- (2) For subclause (1), the volume of air in an enclosed space includes all space enclosed by the vessel's side plating, bulkheads, tank top or decks, but does not include the volume of any airtight tanks or trunks within the space.

2.2 Ventilation in a space that is not enclosed — vessels constructed after commencement of Order

A vessel constructed or converted for the carriage of livestock after 1 July 2018 that has a livestock space that is not enclosed, must have a mechanical ventilation system that can change the total volume of air in the space in accordance with **Table 2.1**.

2.3 Ventilation in a space that is not enclosed — vessels constructed before commencement of Order

- (1) A vessel constructed, or converted, for the carriage of livestock before 1 July 2018 must have a mechanical ventilation system in any livestock space that is either partially enclosed or not enclosed if:
 - (a) the space has an arrangement of pens with a breadth of more than 20 m; or
 - (b) the natural ventilation is restricted.
- (2) If a vessel has an arrangement of pens with a breadth of less than 20 m and has a mechanical ventilation system, the system must comply with this clause.
- (3) For a vessel constructed or converted for the carriage of livestock after 26 May 2004, the mechanical ventilation system mentioned in subclause (1) must be able to change the total volume of air in the space in accordance with **Table 2.1**.
- (4) For a vessel constructed or converted for the carriage of livestock before 27 May 2004, the mechanical ventilation system mentioned in subclause (1) must be able to change the total volume of air in the space in accordance with **Table 2.2**.

Table 2.2 — Older vessels —capacity ventilation systems in some non-enclosed spaces

Item	Minimum clear height of the space	Time within which complete air change must occur
1	≤1.8 m	at least every 2.6 minutes
2	≥2.3 m	at least every 4 minutes
3	>1.8 m and <2.3 m	proportionately between 2.6 and 4 minutes

- (5) However, after 31 December 2019, any vessel with a livestock space that is either partially enclosed or not enclosed must have a mechanical ventilation system that is able to change the total volume of air in the space in accordance with **Table 2.1**.
- (6) For clause 2.2 and this clause, the volume of air in a space that is not enclosed includes all space between the extremities of a pen structure and passageways on the outboard sides or ends of the structure, but does not include the volume of any airtight tanks or trunks within the pen structure.

2.4 Mechanical ventilation system — air distribution requirements

- (1) A mechanical ventilation system must distribute air so that the whole of any livestock space is efficiently ventilated.
- (2) For a vessel constructed or converted for the carriage of livestock after 26 May 2004 — the mechanical ventilation system must provide air from a source of supply, with a velocity across a pen of at least 0.5 ms^{-1} .
- (3) For a vessel constructed or converted for the carriage of livestock before 27 May 2004 — the mechanical ventilation system must, after 31 December 2019, provide air from a source of supply, with a velocity across a pen of at least 0.5 ms^{-1} .
- (4) However, if a solid structure or the vessel's side impedes the flow of air in an area of the pen, AMSA may approve, for up to 4% of the area of the pen, a velocity less than 0.5 ms^{-1} but more than 0.2 ms^{-1} .
- (5) For a livestock space, the livestock operator of the vessel must ensure that:
- the air is as clean and fresh as practicable; and
 - there is minimal recirculation of intake and exhaust air.

Note A vertical high velocity exhaust system may help prevent recirculation of exhaust and intake air.

- (6) Exhaust air outlets must not be sited near accommodation spaces on the vessel.
- (7) Ventilators serving livestock spaces must remain open in all weather conditions while livestock are on board.

Note Under the Load Line Convention, ventilators may be left open in all weather conditions if they are at least 4.5 m above the deck on:

- exposed freeboard decks;
- raised quarterdecks; and
- exposed superstructure decks within a quarter of the ship's length from the forward perpendicular.

If situated anywhere else, they must be at least 2.3 m above the deck.

2.5 Mechanical ventilation system — required redundancy

- (1) If a mechanical ventilation system is fitted, the vessel must carry, for each type of fan in the system, either:
 - (a) spare fans; or
 - (b) spare parts, including:
 - (i) a complete electrical motor;
 - (ii) a complete rotor or impeller;
 - (iii) any other parts required for repair.
- (2) If a mechanical ventilation system is fitted on a vessel, fan starters must be divided into at least 2 group starter panels.
- (3) Each group starter panel must be:
 - (a) located in a space that is not adjacent to a space where another group starter panel is located; and
 - (b) supplied with power from both the main and secondary sources of power; and
 - (c) interlocked to prevent simultaneous supply of power from both main and secondary sources.
- (2) The main and secondary sources of power supplying ventilation services must be as widely separated as practicable, with power from neither passing through a space that contains any part of the other source of power.
- (3) Fans controlled by each group starter panel must be able to ventilate all livestock spaces on the vessel in accordance with clauses 2.1 to 2.3.

2.6 Ventilation alarms

A vessel must have visual and audible alarms on the bridge to provide a warning as soon as there is a failure of any part of the ventilation system for livestock.

Part 3 Lighting

Note For requirements for lighting in dust laden atmospheres, see section 42.

3.1 Main lighting

A lighting system providing a light intensity of at least 20 lux must be supplied by the vessel's main and secondary sources of power and fitted:

- (a) in passageways between pens; and
- (b) beside pens; and
- (c) in access routes to and from livestock spaces; and
- (d) between livestock spaces.

3.2 Operational lighting

Fixed or mobile lights providing a light intensity of at least 110 lux must be provided in each livestock space for the close inspection of livestock.

3.3 Emergency lighting

- (1) An emergency lighting system providing a light intensity of at least 8 lux must:
 - (a) be fitted in all the spaces mentioned in clause 3.1; and
 - (b) be automatically activated if the main lighting system fails; and

- (c) be able to maintain a light intensity of at least 8 lux for at least 15 minutes.
- (2) Lamp casings for light fittings for the emergency lighting system must be painted red.

3.4 Lighting above uppermost continuous deck

Any fixed lighting in a part of a vessel above the uppermost continuous deck must be controllable from the vessel's bridge.

3.5 Light fittings

A light fitting must be:

- (a) waterproof; and
- (b) either:
 - (i) strong enough to resist damage by livestock; or
 - (ii) located so that contact by livestock is not possible.

Part 4 Drainage of pens

4.1 Drainage system to be kept separate from drinking water system

The drainage system for livestock sewage must be kept separate from, and not connected in any way to, the livestock drinking water system.

4.2 Requirement for removing fluids

- (1) A vessel must have a means of effectively draining fluids from a pen where livestock is carried, under any expected conditions of trim by the head or by the stern, or of angle of heel to either side.
- (2) For a vessel constructed, or converted, for the carriage of livestock before 27 May 2004, if livestock is carried in pens that are in more than 1 tier, drainage is not required from the upper tier or tiers.

Note Annex IV of MARPOL and *Marine Order 96 (Marine pollution prevention — sewage) 2013* impose requirements on sewage and may be relevant.

4.3 Drains for certain vessels

- (1) Subclauses (2) and (3) apply to a vessel that:
 - (a) was constructed or converted for the carriage of livestock after 1 July 2018; and
 - (b) has not previously been issued with an ACCL.
- (2) The vessel must have drains at each corner of a pen or group of pens as follows:
 - (a) for a vessel with a beam of more than 20 m:
 - (i) at least 3 drains fitted athwartships; and
 - (ii) for every 5 m that the beam of the vessel exceeds 20 m — an additional drain.
 - (b) no more than 20 m apart longitudinally in each hold or livestock space;
 - (c) for a drain that consists of pipes to the deck below, on a vessel that carries livestock other than sheep or goats:
 - (i) pipes with an internal diameter of at least 300 mm; and
 - (ii) an outlet that is at least 250 mm above the deck or well below.
- (3) If a drain is inside a pen, it must be protected so that:

- (a) livestock cannot get their feet caught in the drain; and
- (b) any protection does not prevent the flow of effluent.

4.4 Drained fluids to be kept away from other areas

Drainage arrangements must ensure that fluids drained from a pen are kept clear of related work areas and other pens.

4.5 Pump or eductor for drainage tank

A pump or eductor for a drainage tank or well must:

- (a) be able to handling semi-solid matter; and
- (b) evacuate the tank or well by lines other than the vessel's bilge lines; and
- (c) be powered from both the main and secondary sources of power.

4.6 Inspection and cleaning of drainage arrangements

For inspection and cleaning, the following things must be accessible from outside livestock pens:

- (a) essential drainage tanks;
- (b) wells;
- (c) the tops of drainage pipes.

4.7 Use of strainer plates

A drainage channel or the top of a drainage pipe must be covered by a strainer plate if:

- (a) it is located inside a pen and could cause injury to an animal if left uncovered; or
- (b) it is located in a passageway and could cause injury to a person if left uncovered.

4.8 Equipment installed to comply with Annex IV of MARPOL

Any equipment on the vessel that is installed to comply with Annex IV of MARPOL must be operable by both the primary and secondary sources of power.

Note 1 *Marine Order 96 (Marine pollution prevention — sewage) 2013* sets out the requirements for a regulated Australian vessel to comply with Annex IV of MARPOL. That Order also requires that a foreign vessel comply with Annex IV.

Note 2 *The Protection of the Sea (Prevention of Pollution from Ships) Act 1983* also implements Annex IV of MARPOL in Australia. The Act prohibits the discharge of sewage in certain areas and prescribes methods for the discharge of sewage at sea.

Part 5 Fodder and water arrangements

5.1 Livestock — daily allowance for water and fodder

- (1) An animal's daily water allowance is:
 - (a) for cattle — 36 L per m² of pen area; and
 - (b) for sheep, pigs and goats — 6 L per head.
- (2) An animal's daily fodder allowance is:
 - (a) for cattle — 5.7 kg per m² of pen area; and
 - (b) for sheep pigs and goats — 4.8 kg per m² of pen area.

5.2 Availability of water and fodder

- (1) Before livestock is loaded, automatic feeding and watering systems must be set up and capable of supplying water and fodder in accordance with this Order.
- (2) Water and fodder must be provided to livestock within 12 hours after loading has commenced.

5.3 Storage and distribution system for drinking water

- (1) A vessel must have a storage and distribution system to provide fresh drinking water to livestock at all times that livestock are on board.
- (2) The water storage system must have capacity for intended voyages.
- (3) If a freshwater generator is used to provide any of this capacity, it must:
 - (a) be powered by both the main and secondary sources of power; and
 - (b) be able to operate if a fire or other emergency occurs in the space containing the main source of power.

Note The survey for the issue of an ACCL for a vessel will consider the impact of fire, flood and other events that might occur in the space containing the primary source of power and assess their likely impact on the water storage and distribution system.

- (4) The master of the vessel must ensure that a tank used for the storage of drinking water for livestock is maintained in good condition to prevent contamination of the water.
- (5) If a water distribution system is automatic, it must be constructed:
 - (a) to minimise spillage from a receptacle by controlling the water level; and
 - (b) to prevent the return of water from a receptacle to the freshwater tank.
- (6) A vessel must have at least 2 pumps servicing the livestock water distribution system.
- (7) These pumps and the supply systems to which they connect must not be configured for any purpose other than servicing the livestock water distribution system.
- (8) At least 1 of the pumps must be:
 - (a) located outside the space occupied by the main source of power; and
 - (b) able to maintain the distribution of water if there is any interruption to the main source of power; and
 - (c) able to operate if a fire or other emergency occurs in the space containing the main source of power.

5.4 Emergency water reserve

- (1) The following vessels must have capacity for 3 days supply of emergency drinking water for livestock:
 - (a) a vessel constructed, or converted for the carriage of livestock before 1 July 2018;
 - (b) a vessel that is undertaking a voyage of less than 14 days.
- (2) The following vessels must have capacity for 7 days supply of emergency drinking water for livestock:
 - (a) a vessel constructed, or converted for the carriage of livestock after 1 July 2018;
 - (b) a vessel that is undertaking a voyage of more than 13 days.

Note Capacity is assessed based on the daily water allowance for the number and kind of livestock on a voyage

- (3) If any part of the capacity mentioned in subclauses (1) and (2) is supplied by a fresh water generator, it must comply with subclause 5.3(3).

5.5 Storage and distribution system for fodder

- (1) A vessel must have a storage and distribution system to provide fodder to livestock.
- (2) If a fodder distribution system is powered electrically, it must be able:
 - (a) to be powered by both the main and secondary sources of power; and
 - (b) to operate if a fire or other emergency occurs in the space containing the main source of power.
- (3) For a vessel constructed, or converted, for the carriage of livestock after 1 July 1983, fodder stored in bulk on the vessel, other than hay, must be contained in at least 2 separate spaces.
- (4) Fodder may be stored in an enclosed livestock space only if:
 - (a) the storage is consistent with the standards in this Schedule for ventilation, lighting and drainage; and
 - (b) it does not prevent compliance with the passageway requirements of this Order.
- (5) Before a vessel goes to sea, fodder stored on an open deck must be secured to prevent movement.
- (6) If a vessel constructed or converted for the carriage of livestock after 1 July 2018 carries fodder that is a cargo unit, the fodder must be loaded, stowed and secured in accordance with the Cargo Securing Manual.

5.6 Receptacles for fodder and water

- (1) Each pen or stall must have a receptacle for feeding livestock and a receptacle for watering livestock.
- (2) However, a fodder receptacle is not required for a pen containing cattle if:
 - (a) the pen adjoins a passageway and the cattle can easily consume hay distributed on the floor of the passageway; and
 - (b) urine and faeces, or water used to wash pens, is prevented from fouling the passageway.
- (3) If fodder and water are not provided by automatic systems, the receptacles for fodder and water in a pen or stall must be able to hold at least 33% of the daily fodder and water allowance respectively of the total number of animals contained in the pen or stall.
- (4) A receptacle mentioned in subsection (1) must:
 - (a) be suitable for the species of livestock; and
 - (b) be readily accessible to livestock; and
 - (c) be serviceable from outside the pen or stall; and
 - (d) be installed so that it does not impede ventilation; and
 - (e) for adult sheep — be no more than 550 mm above the pen floor at the highest part of the receptacle; and

- (f) for fodder — be constructed and positioned so that fodder dust is not disturbed by the ventilation flow.
- (5) If a receptacle for water or fodder is inside a pen and is not portable, to minimise fouling of the receptacle, there must be fitted a pipe or bar that:
 - (a) is an appropriate height for the species carried in the pen; and
 - (b) is at a horizontal distance from the edge of the receptacle of at least:
 - (i) for sheep — 75 mm; and
 - (i) for cattle — 150 mm.

Note If the pipe or bar presents a leg entrapment risk, AMSA may approve an alternative operational control under subsection 35(3). Any alternative arrangement must be detailed in the record of equipment and arrangements.

Notes to Marine Order 43 (Cargo and cargo handling — livestock) 2018

Note 1

Marine Order 43 (Cargo and cargo handling — livestock) 2018 (in force under subsection 342(1) of the *Navigation Act 2012*) as shown in this compilation comprises *Marine Order 43 (Cargo and cargo handling — livestock) 2018* amended as indicated in the following tables.

Table of Orders

Year and number	Registration date	FRLI number	Commencement date	Application, saving or transitional provisions
<i>Marine Order 43 (Cargo and cargo handling — livestock) 2018</i> (MO 2018/11)	25 Jun 2018	F2018L00875	1 Jul 2018	
<i>Marine Orders Amendment (Marine Order 31 — consequential changes) Order 2019</i> (MO 2019/3)	14 Oct 2019	F2019L01327	1 Nov 2019	

Table of amendments

ad. = added or inserted am. = amended rep. = repealed rs. = repealed and substituted

Provision affected	How affected
1A	rep. Legislation Act 2003, s.48D
1B	rep. Legislation Act 2003, s.48C
4	am. MO 2019/3